

Subject Index to Volume 3

- Absorption:** *see* specific subject or site;
also *see* Volume absorption
- 4-Acetamido-4'-isothiocyano-2,2'-disulfonic stilbene**
organic anion transport, renal cortex, F302
- Acetate**
transport, pars recta, F332
- Acetazolamide**
ammoniogenesis, renal, F235
bicarbonate absorption, collecting tubules, F141
bicarbonate reabsorption, renal insufficiency, F472
- Acidosis**
glutamine transport, renal mitochondria, F514
metabolic, bicarbonate reabsorption, F472
- Actinomycin D**
prostaglandin E synthesis and water flow, bladder (toad), F532
- Acute renal failure:** *see* Kidney failure
- Acyldiolase**
prostaglandin E synthesis and water flow, bladder (toad), F532
- Adenosine monophosphate, cyclic**
prostaglandin E synthesis and water flow, bladder (toad), F532
- Adenosine phosphonate, cyclic**
phosphate handling, renal, F497
- Adenosine triphosphatase:** *see* Sodium-potassium-ATPase
- Adenosine triphosphate**
ion transport, plasma membrane, F89
- Adenylate cyclase**
plasma membrane, renal medulla, F247
- ADH:** *see* Antidiuretic hormone;
Vasopressin
- Adrenal glands**
[des-Asp¹]angiotensin I, F130
- Adrenal steroids**
prostaglandin E synthesis and water flow, vasopressin-stimulated, bladder (toad), F532
- Albumin**
radioiodinated human serum, escape rate, volume expansion, F386
- Aldosterone**
natriuresis, spontaneous hypertension, F29
plasma, [des-Asp¹]angiotensin I effects, F130
potassium excretion, renal (sheep), F371
prostaglandin E synthesis and water flow, bladder (toad), F532
sodium and water retention, F490
vasopressin-treated diabetes, F106
- Allopurinol**
uric acid synthesis (chicken), F446
- Amiloride**
bicarbonate reabsorption, collecting tubules, F141
chloride fluxes, skin (frog), F437
sodium transport, bladder (toad), F192
transepithelial potentials, distal tubule (reptile), F238
- Amino acids**
transport, pars recta, F332
transport, plasma membrane, F89
tubular handling of microinfused angiotensin II, F325
- p-Aminohippurate**
organic ion transport, renal cortex, F302
- p-Aminohippuric acid**
transport, and prostaglandin transport, renal, comparison, F80
- Ammonia**
excretion, renal, F514
- Ammoniogenesis**
acetazolamide effects, renal, F235
- Anephria:** *see* Nephrectomy
- Angiotensin:** *see also* Isorenin-angiotensin system
- Angiotensin-converting enzyme:** *see* Converting enzyme
- Angiotensin I**
[des-Asp¹]angiotensin I, renal and adrenal responses, F130
- Angiotensin II**
antidiuretic hormone release, central sites of action, F135
central blockade, drinking inhibition, F41
prostaglandin E synthesis and water flow, bladder (toad), F532
tubular handling, amino acids and, F325
- Anions**
organic, transport, renal cortical, SITS effects, F302
renin secretion, F10
- Antidiuretic hormone:** *see also* Vasopressin
bioassay, identification in prolactin powder, F318
particle aggregation, intramembranous, time course, bladder (toad), F461
prolactin preparations, contamination, F318
release, angiotensin II-stimulated, central sites of action, F135
water retention, carbon dioxide pressure and, F291
- Anti-inflammatory agents, nonsteroidal**
prostaglandin E synthesis and water flow, bladder (toad), F532
sodium and water retention, F490
- Apparatus and techniques:** *see* specific subject or site
- Arachidonic acid**
prostaglandin E synthesis and water flow, bladder (toad), F532
- Arginine vasopressin:** *see* Vasopressin
- Aspartic acid**
angiotensin II, tubular handling, F325
- ATPase:** *see* Sodium-potassium-ATPase
- Autoregulation**
renal, whole kidney and single nephron studies, F357
- Basement membrane:** *see* Membrane
- Basolateral membrane:** *see* Membrane
- Bicarbonate**
absorption, cortical collecting tubules, F141
reabsorption, renal insufficiency, F472
- Biological fluids:** *see* Fluids
- Bladder:** *see* Urinary bladder
- Blockade**
central, of thirst, F41
cholinergic receptor, drinking inhibition, F41
- Blood**
sequestration, radioiodinated serum albumin and ⁵¹Cr-labeled erythrocytes, F386
- Blood flow:** *see also* Circulation
[des-Asp¹]angiotensin I effects, F130
renal, tubuloglomerular feedback effects, F154
- Blood volume:** *see also* Volume
measurement, with radioiodinated serum albumin and ⁵¹Cr-labeled erythrocytes, F386
- Body fluids:** *see* Fluid
- Body water:** *see* Water
- Bradykinin**
prostaglandin E synthesis and water flow, bladder (toad), F532
- Buffer values**
muscle, F432
- Brain**
antidiuretic hormone release, angiotensin II-stimulated, F135
isorenin-angiotensin system, drinking inhibition, F41
- Bumetanide**
chloride transport, selective effects, cornea (bullfrog), F297
- Calcemia**
phosphate, inorganic, renal handling, F497
- Calcium**
magnesium metabolism, F466
phosphate reabsorption, renal tubular, F22
prostaglandin E synthesis and water flow, bladder (toad), F532
transport, renal peritubular surface (teleost), F522
- Capillaries:** *see* Permeability; Pressure
- Carbon**
glutamine: *see* Glutamine carbon
- Carbon dioxide**
pressure, antidiuretic hormone-induced water retention, F291
total, collecting tubules, F141
- Carbonic anhydrase**
ammoniogenesis, renal, F235
bicarbonate absorption, collecting tubules, F141
bicarbonate reabsorption, renal insufficiency, F472
- Cardiac tamponade**
acute, renal function, F117
- Cations, organic**
transport, renal cortex, F302
- Cells:** *see also* specific site or type
chemical activities, intracellular, F261
shape, and water reabsorption, relation, proximal nephron, model, F308
sodium and potassium activities, F261

Cellular integrity
acute renal failure, F171

Chloride
excretion, urinary, regulation, F97
fluxes, amiloride-induced reduction, skin (frog), F437
reabsorption, furosemide effects, F97
reabsorption, segmental, nephron, as a function of load, F97
reabsorption, volume expansion and, F97
transport, bumetanide effects, cornea (bullfrog), F297

Chloride ions
volume absorption, pars recta, F332

Cholera toxin
prostaglandin E synthesis and water flow, bladder (toad), F532

Cholesterol
plasma membrane composition, renal medulla, F247

Choline
bicarbonate absorption, collecting tubules, F141

Cholinergic blockade: *see* Blockade

Cholinergic receptors: *see* Receptors

Chromatography
gas, prostaglandin biosynthesis, renal papilla, F64
thin-layer, prostaglandin E synthesis and water flow, bladder (toad), F532

Chromium-51
erythrocyte escape rate in volume expansion, F386

Circulation: *see also* Blood flow
renal, glucose metabolism and, F415

Collecting ducts, tubules: *see* Kidney tubules, collecting

Colon
potassium secretion, characteristics, F48
sodium ions, electrochemical gradient, F48

Comparative physiology: *see* Physiology

Compartmentalization
sodium and potassium ions, subcellular, F261

Concentrating mechanism
urinary, newborn, F16

Conductivity, hydraulic
basement membrane, Henle's loop, F54
coefficient, pars recta, F340

Computer studies: *see* Models; *also* the specific subject or site

Constriction
thoracic inferior vena cava, renin release, F10

Converting enzyme inhibitor
renal responses, F130

Corneal epithelium
transport, mathematical model, F215

Corticosterone
vasopressin-induced diabetes, F106

Creatinine
clearance, [des-Asp¹]angiotensin I effects, F130
excretion, spontaneous hypertension, F29

Current, short-circuit
chloride fluxes, skin (frog), F437
prostaglandin E synthesis and water flow, bladder (toad), F532

Cyanide
transepithelial potentials, distal tubule (reptile), F238

Cyclic adenosine phosphonate: *see* Adenosine phosphonate, cyclic

Cycloheximide
prostaglandin E synthesis and water flow, bladder (toad), F532

Cycloleucine
glucose metabolism, renal, regional, F415

Cytoplasmic pools
sodium and potassium ions, F261

Demeclocycline
prostaglandin E synthesis and water flow, bladder (toad), F532

2-Deoxy-D-galactose
transport, renal (flounder), F424
[des-Asp¹]Angiotensin I: *see under* Angiotensin I

Dexamethasone
prostaglandin E synthesis and water flow, bladder (toad), F532

Dextrans
neutral, glomerular permselectivity, F455

Diabetes insipidus
hereditary hypothalamic, drinking inhibition, F41
vasopressin treatment, prolonged, F106

1,25-Dihydroxyvitamin D₃
phosphate, inorganic, renal handling, F497

Diphosphonates
phosphate, inorganic, renal handling, F497

Disodium dichloromethane diphosphonate
phosphate, inorganic, renal handling, F497

Disodium ethane-1-hydroxy-1,1-diphosphonate
phosphate, inorganic, renal handling, F497

Diuresis
potassium excretion (sheep), F371

Drinking: *see also* Thirst
adult, effects of prenatal and postnatal sodium deprivation, F59
inhibition, central angiotensin II blockade, F41
inhibition, cholinergic receptor blockade, F41

Drugs: *see* specific drug or subject

Electrical potentials: *see* Potentials

Electrochemical gradients
sodium ions, colon, F48
sodium ions, plasma membrane, F89

Electrolytes
excretion, potassium excretion and (sheep), F371

Electron microscopy: *see* Microscopy

Electrophysiology
renal distal tubule (reptile), F238

Endothelium
glomerular, permselectivity, F455

Energy-dispersive spectrometer: *see* Spectrometry

Epithelial cells
sodium transport pool (toad), F1

Epithelium
corneal transport, mathematic model, F215
potassium transport, transepithelial, F261

sodium transport, transepithelial, F261

Erythrocytes
permeability, renal glucose metabolism, F415
sequestration, radiiodinated serum albumin escape rate, F386

Erythrocyte
extrarenal, nephrectomy-hypoxia time increase, F510

Erythropoietic factor
nephrectomy-hypoxia time increase, F510

Erythropoietin
nephrectomy-hypoxia time increase, F510

Ethacrynic acid
transepithelial potentials, distal tubule (reptile), F238

Extracellular fluid volume: *see* Volume

Extracellular volume expansion: *see* Volume expansion

Feedback
macula densa, F154

Feedback, tubuloglomerular
chronic tubular obstruction (*Necturus*), F112
filtration rate responses to nephron perfusion, F154
renal autoregulation and, F357
stop-flow pressure responses to nephron perfusion, F154

Fetus
sodium deprivation, subsequent adult thirst and salt preference, F59
sodium metabolism, F59
water metabolism, F59

Filtration: *see also* Ultrafiltration

Filtration, glomerular
autoregulation, F357
glucocorticoid-induced increase, F166
feedback responses to nephron perfusion, F154
parathyroid hormone effects, F393
potassium excretion (sheep), F371

Filtration, single nephron
feedback responses to perfusion, F154
glucocorticoid-induced increase, F166
salt load, intravenous (starling), F270

Flowmeter
thermistor, urine, F452

Fluid
body, spontaneous hypertension, F29
extracellular: *see* Volume; Volume expansion
microdrop analysis technique, with energy-dispersive x-ray spectrometer on a scanning electron microscope, F255

Fluid absorption
isotonic, luminal hypotonicity and, pars recta, F349
potential difference, tubular, F381
proximal tubule, F279
sodium effects, proximal tubule (snake), F68

Furosemide
chloride reabsorption, segmental, nephron, F97

Gas chromatography: *see* Chromatography

Glomerular feedback: *see* Feedback

- Glomerular filtration: *see* Filtration;
Ultrafiltration
- Glomerular permselectivity
barrier function based on molecular
size and charge, F455
nephrotic syndrome and, F455
- Glomerular pressure: *see* Pressure
- Glomerulotubular balance
acute cardiac tamponade, F117
- Glomerulotubular feedback: *see* Feedback
- Glomerulus
basement membrane, permselectivity,
F455
endothelium, permselectivity, F455
epithelial slit diaphragm,
permselectivity, F455
- Gluconeogenesis
glutamine carbon metabolism, renal,
F123
renal, F415
- Glucose
metabolism, phlorizin effects, renal,
F485
metabolism, renal, regional, F415
phlorizin and, interactions, proximal
tubule, F270
- Glucose transport
pars recta, F332
proximal tubules, F279
tubular, leaked load, F480
- D-Glucose
transport, plasma membrane, F89
- Glutaminase
ammoniogenesis, renal, F235
- Glutamine
mitochondrial, and metabolism, renal,
rapid-mixing, rapid-filtration
technique, F514
- Glutamine carbon
isotope distribution, theoretical
treatment of data, F123
metabolism, renal, F123
- γ -Glutamyl transpeptidase
ammoniogenesis, renal, F235
- Glycocorticoids
glomerular filtration rate, increased,
mechanism, F166
prostaglandin E synthesis and water
flow, bladder (toad), F532
- H**ematocrit
 ^{51}Cr -labeled erythrocytes, in volume
expansion, F386
radioiodinated albumin, in volume
expansion, F386
- Hemodynamic techniques
acute renal failure, F171
- Hemodynamics
renal, whole kidney and single
nephron, F357
- Henle's loop
ascending limb, phosphate
reabsorption, F287
basement membrane, isolated perfused,
physical properties, F54
- Heptapeptides
renal and adrenal responses, F130
- Heterogeneity
plasma membrane, F89
phosphate reabsorption, nephron, F287
potassium ions, intracellular, F261
sodium ions, intracellular, F261
- Histology: *see* Microanatomy; Morphology
- Hydraulic conductivity: *see* Conductivity
- Hydrostatic pressure: *see* Pressure
- Hypercapnia
water retention, antidiuretic hormone-
induced, F291
- Hyperparathyroidism
glomerular ultrafiltration, F393
- Hypertension
spontaneous, natriuresis, exaggerated,
aldosterone in, F29
- Hypertonic medium
prostaglandin output stimulation, renal
papilla, F64
- Hypocapnia
water retention, antidiuretic hormone-
induced, F291
- Hypothalamic diabetes insipidus: *see*
Diabetes insipidus
- Hypothalamus
antidiuretic hormone release,
angiotensin II-stimulated, F135
- Hypotonicity
luminal, isotonic fluid absorption, pars
recta, F349
- Hypoxia
erythropoietin, extrarenal, F510
- I**nfusion: *see* specific subject or site
- Ions
concentration, transepithelial potential
difference, distal tubule, F182
- Ions, transport
ATP-independent, plasma membrane,
F89
bumetanide effects, cornea (bullfrog),
F297
divalent, renal peritubular surface
(teleost), F522
multi-ionic solutions, structured
tissues, mathematical model, F215
- Ischemia, renal
acute failure and, F171
- Isoleucine
angiotensin II, tubular handling, F325
- Isoproterenol
prostaglandin E synthesis and water
flow, bladder (toad), F532
- Isorenin-angiotensin system
brain, drinking inhibition, F41
- Isotonic fluid: *see* Fluid
- J**uxtaglomerular apparatus
chronic tubular obstruction (*Necturus*),
F112
- K**allikrein
activity, renal, F36
- Kidney
adenylate cyclase, vasopressin
responsiveness, newborn, F16
p-aminohippuric acid transport, F80
ammonia excretion, F514
ammoniogenesis, F235
anatomical-functional factors, F207
autoregulation, whole kidney and
single nephron studies, F357
bicarbonate reabsorption, renal
insufficiency, F472
blood flow: *see* Blood flow; Circulation
clearance: *see* specific substance
comparative physiology (avian), F270
comparative physiology (reptile), F68,
F238
2-deoxy-D-galactose secretion
(flounder), F424
[des-Asp¹]angiotensin I, F130
electrolyte excretion (sheep), F371
erythropoietic factor, nephrectomy-
hypoxia time increase, F510
function, acute cardiac tamponade,
F117
gluconeogenesis, F415
glucose metabolism, phlorizin and,
F270, F485
glucose metabolism, regional, F415
glutamine carbon metabolism, F123
glutamine transport and metabolism,
mitochondrial, rapid-mixing, rapid-
filtration technique, F514
infusion, renin release, F10
insufficiency, bicarbonate reabsorption,
F472
ischemia: *see* Ischemia
kallikrein activity, F36
kinins, formation, nephron, F36
membranes: *see* Membranes
metabolism, phlorizin effects, F270,
F485
microanatomy, F207
mineralocorticoid receptors, sodium
and water retention and, F490
nephrectomy: *see* Nephrectomy
organic acid transport, F80
perfused, renin release, F376
phosphate transport, phosphate
deprivation and, F199
plasma flow: *see* Plasma flow
potassium excretion, electrolyte
infusion studies (sheep), F371
prostaglandins: *see* Prostaglandins
renin: *see* Renin
salt load, intravenous (starling), F270
sodium retention, nonsteroidal anti-
inflammatory drug effects, F490
sugar transport (flounder), F424
uric acid synthesis (chicken), F446
vasoconstriction: *see* Vasoconstriction
volume expansion: *see* Volume
expansion
water retention, nonsteroidal anti-
inflammatory drugs, effects, F490
- Kidney cells
phlorizin action, tubular membrane,
F485
- Kidney cortex
organic anion transport, SITS effects,
F302
superficial vasculature, F207
- Kidney failure, acute
cellular integrity, F171
pathophysiology, current concepts,
F171
- Kidney medulla
adenylate cyclase, vasopressin
responsiveness, newborn, F16
central core model, comparisons, rabbit
and rat, F402
concentration gradient, F402
plasma membrane, distinct,
purification, F247
volume flow rate, F402
- Kidney papilla
prostaglandin biosynthesis, stimulation
by hypertonic medium, F64
- Kidney tubules
angiotensin II handling, amino acids
and, F325
calcium transport, peritubular surface
(teleost), F522

- Kidney tubules (*continued*)
 2-deoxy-D-galactose secretion (flounder), F424
 feedback: *see* Feedback
 glutamine carbon metabolism, F123
 microenvironment, F207
 obstruction, chronic (*Necturus*), F112
 phlorizin action, membranes of proximal cells, F485
 phosphate: *see* Phosphate
 physical properties, Henle's loop, F54
 pump-leak system, F480
 sugar transport (flounder), F424
 Kidney tubules, collecting
 adenylate cyclase, vasopressin responsiveness, newborn, F16
 bicarbonate absorption, F141
 morphology, F146
 Kidney tubules, distal
 angiotensin II handling, amino acids and, F325
 electrophysiology (reptile), F238
 potassium regulation, F146
 potassium secretion, comparison with colon, F48
 transepithelial potential difference, F182
 transepithelial potentials, generation (reptile), F238
 transepithelial transference number, F182
 Kidney tubules, proximal
 angiotensin II handling, amino acids and, F325
 cell shape and water reabsorption, relation, phenomenological model, F308
 configuration, F207
 fluid absorption, F68, F279, F381
 glucose transport, F279
 glucose-phlorizin interactions, F279
 phosphate transport during phosphate deprivation, F199
 sodium absorption (snake), F68
 transport kinetics, F279
 volume absorption, F349
 Kidney tubules, proximal convoluted
 solute transport, leaked load, F480
 volume absorption, F349
 Kidney tubules, proximal straight
 hydraulic conductivity coefficient, F340
 volume absorption, F340
 Kinetics: *see* specific site or subject
 Kinins
 formation, nephron, F36
 Lithium
 prostaglandin E synthesis and water flow, bladder (toad), F532
 Load
 leaked, solute transport, tubular, F480
 Loading
 chloride reabsorption, nephron, F97
 salt, renal response (starling), F270
 salt, spontaneous hypertension, F29
 sodium, renin release and, F376
 Loop of Henle: *see* Henle's loop
 Macromolecules
 negatively and positively charged, glomerular permselectivity, F455
 Macula densa
 autoregulation, renal, F357
 chronic tubular obstruction (*Necturus*), F112
 feedback: *see* Feedback
 renin secretion, F10
 Magnesium
 metabolism, potassium depletion and, F466
 sodium transport, bladder (toad), F192
 Mass spectrometry: *see* Spectrometry
 Mathematical models: *see* Models, and the specific subject and site
 Membrane
 basal lateral, sugar transport, kidney (flounder), F424
 basement, Henle's loop, physical properties, F54
 basolateral, organic anion transport, SITS effect, renal cortex, F302
 permeability: *see* Permeability
 potentials: *see* Potentials
 Membrane, plasma
 distinct, renal medulla, F247
 electrochemical sodium ion gradient, F89
 heterogeneity, F89
 ion transport, ATP-independent, F89
 transport, F89
 Mesangial cell
 dysfunction, glomerular permselectivity and, F455
 Metabolic acidosis: *see* Acidosis
 Methylprednisolone
 glomerular filtration rate, F166
 Microanalysis
 quantitative, fluids, F255
 Microanatomy
 kidney, F207
 Microdrop analysis
 fluids, with energy-dispersive x-ray spectrometer on a scanning electron microscope, F255
 Microelectrodes
 ion-selective, F261
 sodium and potassium, intracellular activities, F261
 Microenvironment
 tubular, F207
 Microinjection
 angiotensin II tubular handling, amino acids and, F325
 Microperfusion
 Henle's loop, physical properties, F54
 Microprobe
 microdrop analysis of fluids, technique, F255
 Micropuncture studies
 acute renal failure, F171
 autoregulation, whole kidney and single nephron, F357
 phosphate reabsorption, nephron, F287
 phosphate reabsorption, renal tubular, calcium effects, F22
 potassium regulation, tubular sites, F146
 tubuloglomerular feedback responses, F154
 Microscopy, electron
 freeze-fracture, antidiuretic hormone-induced particle aggregation, urinary bladder (toad), F461
 scanning, microdrop analysis of fluids, F255
 Mineralocorticoids
 hypertension, spontaneous, F29
 prostaglandin E synthesis and water flow, bladder (toad), F532
 receptors, renal sodium and water retention, F490
 Mitochondria, kidney
 glutamine transport and metabolism, rapid-mixing, rapid-filtration technique, F514
 Models: *see also* specific subject and site
 acute renal failure, F171
 glutamine carbon, theoretical treatment of data on isotope distribution, F123
 mathematical, renal medulla, central core, F402
 mathematical, transport in structured tissues, corneal epithelium, F215
 phenomenological, relating cell shape to water reabsorption, proximal nephron, F308
 Molecular charge
 glomerular permselectivity, F455
 Molecular size
 glomerular permselectivity, F455
 Morphology: *see also* Microanatomy
 cell shape and water reabsorption, proximal nephron, F308
 collecting duct, F146
 Muscle, heart
 buffer values, F432
 Muscle, skeletal
 buffer values, F432
 Naproxen
 prostaglandin E synthesis and water flow, bladder (toad), F532
 Natriuresis
 aldosterone effects, spontaneous hypertension, F29
 Nephrectomy
 drinking inhibition, F41
 erythropoietin, extrarenal, F510
 unilateral, potassium regulation, tubular sites, F146
 Nephron
 chloride reabsorption, segmental, as a function of load, F97
 distal, kinin formation, F36
 filtration: *see* Filtration
 function, potassium effects, F381
 perfusion, feedback responses, F154
 phosphate reabsorption, heterogeneity, F287
 proximal, cell shape and water reabsorption, phenomenological model, F308
 single, autoregulation, F357
 superficial, anatomical patterns, F207
 superficial, tubular-vascular relations, F207
 superficial and deep, phosphate transport, F287
 Nephrotic syndrome
 glomerular permselectivity and, F455
 Neurohypophysis
 antidiuretic hormone release, angiotensin II-stimulated, F135
 Newborn
 sodium deprivation, subsequent adult thirst and salt preference, F59
 sodium metabolism, F59
 vasopressin, adenylate cyclase responsiveness, renal, F16
 water metabolism, F59

- Nonapeptides**
renal and adrenal responses, F130
- Nonsteroidal anti-inflammatory agents:**
see Anti-inflammatory agents
- Norepinephrine**
prostaglandin E synthesis and water flow, bladder (toad), F532
- Nucleus**
supraoptic, antidiuretic hormone release, angiotensin II-stimulated, F135
- Organic acid**
transport, renal, F80
- Organic anions:** see Anions
- Osmolarity**
prostaglandin biosynthesis, renal papilla, F64
- Osmoregulation**
renal tubules (teleost), F522
- Osmotic water flow:** see Water
- Ouabain**
bicarbonate absorption, collecting tubules, F141
transepithelial potentials, distal tubule (reptile), F238
- Oxygen**
consumption, bumetanide effects, cornea (bullfrog), F297
- Oxytocin**
bioassay, identification in prolactin powder, F318
prolactin preparations, contamination, F318
- Parathyroid hormone**
glomerular ultrafiltration, F393
phosphate, inorganic, renal handling, F497
phosphate reabsorption, nephron, F287
phosphate reabsorption, renal tubular, calcium effects, F22
phosphate transport, renal, F199
- Pars recta**
chloride ions, absorption, F332
flow-rate dependence, F340, F349
hydraulic conductivity coefficient, F340
length dependence, F349
luminal hypotonicity, F349
sodium ions, transport, F332
volume absorption, F332, F340, F349
- Particle aggregation**
antidiuretic hormone-induced, bladder (toad), F461
- Peptides**
angiotensin II handling, tubular, F325
- Perfusion:** see specific subject or site
- Peristaltic flow**
urine, thermistor monitoring, F452
- Permeability**
capillary, parathyroid hormone effects on glomerular ultrafiltration, F393
chloride, short-circuited skin (frog), F437
corneal, bumetanide effects (bullfrog), F297
corneal epithelium, structured tissues, mathematical model, F215
erythrocyte, renal glucose metabolism, F415
membrane, potassium ions, intracellular, F261
membrane, sodium ions, intracellular, F261
- Permeability, proximal tubule**
pore theory (*Necturus*), F225
tight junction (*Necturus*), F225
volume expansion (*Necturus*), F225
- Phlorizin**
2-deoxy-D-galactose secretion, renal (flounder), F424
glucose and, interactions, proximal tubule, F270
glucose metabolism, renal, F485
renal tubular membranes, F485
total renal metabolism, F485
- Phosphate**
deprivation, renal phosphate transport and, F199
dietary, renal handling, F497
infusion, renal, F199
inorganic, renal handling, F497
reabsorption, calcium effects, renal tubular, F22
reabsorption, heterogeneity, nephron, F287
transport, nephron, superficial and deep, F287
transport, renal, phosphate deprivation and, F199
- Phosphatemia**
inorganic phosphate, renal handling, F497
- Phospholipase**
prostaglandin E synthesis and water flow, bladder (toad), F532
- Phospholipids**
plasma membrane composition, renal medulla, F247
- Phosphonate:** see Adenosine phosphonate
- Physiology**
comparative, renal (avian), F270
comparative, renal (reptile), F68, F238
developmental: see Fetus; Newborn
- Plasma flow, renal**
glucocorticoid-induced glomerular filtration, F166
- Plasma membrane:** see Membrane; also Permeability
- Pore theory**
permeability, proximal tubule (*Necturus*), F225
- Potassium:** see also Sodium-potassium-ATPase
- adaptation, colon, F48**
balance, vasopressin-treated diabetes, F106
depletion, magnesium metabolism, F466
depletion, muscle buffer values, F432
excretion, electrolyte infusion studies, renal (sheep), F371
excretion, spontaneous hypertension, F29
excretion, tubular, uninephrectomy, F146
fluid adsorption, proximal tubules, F381
glutamine transport, renal mitochondria, F514
prostaglandin E synthesis and water flow, bladder (toad), F532
proximal tubular function responses, F381
regulation, tubular sites, uninephrectomy, F146
secretion, colon, F48
sodium and, intracellular activities, F261
transport, transepithelial, F261
- Potassium ions**
compartmentalization, subcellular, F261
cytoplasmic pools, F261
heterogeneity, intracellular, F261
- Potassium salts**
renin secretion, F10
- Potentials**
membrane, structured tissues, corneal epithelium, F215
tip, distal tubule, F182
transepithelial, distal tubule, F182
transepithelial, distal tubule (reptile), F238
- Pressure**
glomerular, renal autoregulation, F357
glomerular, stop-flow, feedback responses to nephron perfusion, F154
glomerular capillary, chronic tubular obstruction (*Necturus*), F112
hydrostatic, basement membrane, Henle's loop, F54
- Probenecid**
prostaglandin E synthesis and water flow, bladder (toad), F532
- Progesterone**
prostaglandin E synthesis and water flow, bladder (toad), F532
- Prolactin**
powder, contamination by antidiuretic hormone and oxytocin, F318
- Prostaglandin E**
synthesis, vasopressin-stimulated, adrenal steroid effects, bladder (toad), F532
- Prostaglandin E₁**
transport, renal, F80
- Prostaglandin F_{2α}**
transport, renal, F80
- Prostaglandins**
and *p*-aminohippuric acid transport, renal, comparisons, F80
biosynthesis, renal papilla, stimulation by hypertonic mediums, F64
magnesium metabolism, F466
metabolism, renal, F80
sodium and water retention, F490
- Protein**
synthesis, adrenal steroids and, bladder (toad), F532
- Proteinuria**
glomerular permselectivity and, F455
- Pump**
sodium, magnesium and, bladder (toad), F192
- Pump-leak systems**
solute transport, tubular, F480
- Radioimmunoassay**
prostaglandin E synthesis and water flow, bladder (toad), F532
- Radioiodinated human serum albumin:**
see Albumin
- Radionuclide studies:** see specific subject or site
- Reabsorption:** see specific subject or site
- Receptors**
cholinergic, drinking inhibition, F41
mineralocorticoid, renal, sodium and water retention, F490
- Reflection coefficient**
volume expansion, proximal tubule (*Necturus*), F225
- Renin**
pools, renal, F506

- Renin (*continued*)
 synthesis, renal, F506
 Renin release
 mechanisms, F10
 mechanisms, responsiveness, F376
 sodium deprivation and, F376
 Renin secretion
 anions, F10
 [des-Asp¹]angiotensin I effects, F130
 renal renin content and, F506
 sodium salts, F10
 Renin-angiotensin system
 acute renal failure, F171
 vasopressin-treated diabetes, F106
- Saline infusion**
 phosphate reabsorption, renal tubular, calcium effects, F22
- Saliva**
 microdrop analysis technique, with energy-dispersive x-ray spectrometer on a scanning electron microscope, F255
- Salt**
 absorption, passive and active, pars recta, F349
 load, renal response (starling), F270
 loading, spontaneous hypertension, F29
 preference, adult, effects of prenatal and postnatal sodium deprivation, F59
 transport, pars recta, F340
- Scanning electron microscope: *see* Microscopy
- Sensor**
 thermistor, urine flow, F452
- Short-circuit current: *see* Current
- Shunt pathway**
 chloride, short-circuited skin (frog), F437
- SITS: *see* 4-Acetamido-4'-isothiocyanato-2,2'-disulfonic stilbene
- Skin**
 short-circuited, chloride fluxes, amiloride reduction (frog), F437
 sodium transport pool (frog), F1
- Sodium**
 absorption, proximal tubules (snake), F68
 balance, vasopressin-treated diabetes, F106
 deprivation, critical periods, F59
 deprivation, pre- and postnatal, subsequent adult thirst and salt preference, F59
 deprivation, renin release and, F376
 excretion, [des-Asp¹]angiotensin I effects, F130
 excretion, spontaneous hypertension, F29
 fluid absorption, proximal tubules (snake), F68
 loading, renin release and, F376
 magnesium metabolism and, F466
 metabolism, pre- and postnatal, F59
 permeability, skin (frog), F437
 potassium and, intracellular activities, F261
 pump: *see* Pump
 retention, nonsteroidal anti-inflammatory drugs, F490
 retention, renal, acute cardiac tamponade, F117
 transport, bladder, magnesium effects (toad), F192
 transport, transepithelial, F261
 Sodium chloride
 infusion, potassium excretion, renal (sheep), F371
 Sodium ions
 compartmentalization, subcellular, F261
 cytoplasmic pools, F261
 electrochemical gradient, colon, F48
 electrochemical gradient, plasma membrane, F89
 heterogeneity, intracellular, F261
 transport, simple active, pars recta, F332
 Sodium phosphate
 infusion, potassium excretion, renal (sheep), F371
 Sodium pool
 activity, techniques, bladder (toad), F1
 size, bladder (toad), F1
 transepithelial transport, bladder (toad), F1
 Sodium-potassium-ATPase
 plasma membrane, distinct, renal medulla, F247
 Sodium salts
 renin secretion, F10
 Sodium sulfate
 infusion, potassium excretion, renal (sheep), F371
 Solutes
 transport, renal tubular, leaked load, F480
 Spectrometry
 energy-dispersive x-ray, for microdrop analysis of fluids, F255
 mass, prostaglandin biosynthesis, renal papilla, F64
 Spironolactone
 hypertension, spontaneous, F29
 prostaglandin E synthesis and water flow, bladder (toad), F532
 Steroids, adrenal: *see* Adrenal steroids
 Stop-flow experiments
 kinins, formation, nephron, F36
 Stop-flow pressure
 glomerular, feedback responses to nephron perfusion, F154
 Sugar
 reabsorption, renal (flounder), F424
 transport, renal (flounder), F424
 Supraoptic nuclei
 antidiuretic hormone release, angiotensin II-stimulated, F135
 Sweat
 microdrop analysis technique, with energy-dispersive x-ray spectrometer on a scanning electron microscope, F255
- Tamponade**
 cardiac, acute, renal function and, F117
- Thermistor**
 urine flow rate monitoring, F452
- Thermodynamics**
 renal medulla, central core model, F402
- Thirst: *see also* Drinking
 central blockade, F41
 critical periods, F59
 imprinting, F59
- Thyroparathyroidectomy
 phosphate, inorganic, renal handling, F497
 phosphate reabsorption, nephron, F287
 phosphate reabsorption, renal tubular, calcium effects, F22
 phosphate transport, renal, F199
 Tip potential: *see* Potentials
- Tissue**
 structured, transport, mathematical model, F215
 Toxin, cholera: *see* Cholera toxin
 Tracers: *see* specific site or subject
 Transepithelial potentials: *see* Potentials
 Transport: *see* specific site or subject
 Triamcinolone
 prostaglandin E synthesis and water flow, bladder (toad), F532
 Tubules: *see* Kidney tubules
 Tubuloglomerular feedback: *see* Feedback
- Ultrafiltration, glomerular**
 acute renal failure, F171
 barrier function based on molecular size and charge, F455
 epithelial slit diaphragm, F455
 mesangial cell dysfunction, F455
 parathyroid hormone effects, F393
 permselectivity, F455
 proteinuria, F455
 Uninephrectomy: *see* Nephrectomy
- Urea**
 central core model, renal medulla, F402
 excretion, vasopressin-treated diabetes, F106
- Uric acid**
 salt load (starling), F270
 specific activity ratio, renal (chicken), F446
 synthesis, renal (chicken), F446
- Urinary bladder**
 antidiuretic hormone-induced particle aggregation, time course (toad), F461
 membrane function and structure (toad), F461
 prostaglandin E synthesis and water flow (toad), F532
 sodium transport, magnesium effects (toad), F192
 sodium transport pool (toad), F1
 water permeability (toad), F461
- Urinary excretion: *see* specific substance
- Urine**
 concentrating mechanism, newborn, F16
 microdrop analysis technique, with energy-dispersive x-ray spectrometer on a scanning electron microscope, F255
 spurt volume, F452
 thermistor flowmeter, F452
- Vasoconstriction**
 renal, acute renal failure, F171
 Vasopressin: *see also* Antidiuretic hormone
 adenylate cyclase responsiveness, renal, newborn, F16
³H-labeled, plasma membrane, renal medulla, F247
 prolonged treatment, diabetes insipidus, F106
 sodium transport, bladder (toad), F192
 Vasopressin, arginine
 prostaglandin E synthesis, adrenal steroid effects, bladder (toad), F532
 water flow, adrenal steroid effects, bladder (toad), F532
 Vena cava, inferior thoracic

constriction, renin release, F10
Voltage clamp
sodium transport, magnesium effects,
bladder (toad), F192
Volume: *see also* Blood volume
extracellular fluid, spontaneous
hypertension, F29
plasma, calculation with radioiodinated
albumin and ^{51}Cr -labeled
erythrocytes, in volume expansion,
F386
Volume absorption
pars recta, F332, F340, F349
Volume expansion
albumin, radioiodinated, escape rate,
F386
chloride reabsorption, segmental,
nephron, F97
erythrocytes, ^{51}Cr -labeled, escape rate,

F386
extracellular, renal, phosphate
deprivation and, F199
extracellular, renal, phosphate
transport and, F199
extracellular fluid, bicarbonate
reabsorption in renal insufficiency,
F472
permeability changes, proximal tubule
(*Necturus*), F225
Volume flow rate
kidney medulla, central core model,
F402

Water
drinking: *see* Drinking; Thirst
flow, adrenal steroid effects, bladder
(toad), F532

flow, osmotic, pars recta, F340
reabsorption and cell shape, proximal
nephron, relations, F308
retention, antidiuretic hormone-
induced, carbon dioxide pressure and,
F291
retention, nonsteroidal anti-
inflammatory drugs, F490
total body, spontaneous hypertension,
F29
transport, pars recta, F340
Water metabolism
antidiuretic hormone and, F291
carbon dioxide tension and, F291
pre- and postnatal, F59

X-ray analysis
biological fluids, technique, F255



Author Index to Volume 3

- Ackermann, U., F386
Aguilera, A. J., F192
Agus, Z. S., F22
Alexander, E. A., F146
Andreoli, T. E., F332, F340, F349
Barnes, L. D., F171
Baroody, R. A., F80
Bastl, C., F48
Bauer, J. H., F29
Baylis, C., F166
Bell, P. D., F154
Bengele, H. H., F146
Bentley, S. K., F68
Bentzel, C. J., F225
Berndt, T., F287
Beyenbach, K. W., F238
Binder, H. J., F48
Bito, L. Z., F80
Bonjour, J.-P., F497
Booz, G., F424
Bosanac, P., F22
Boulpaep, E. L., F182
Boylan, J. M., F514
Boynar, J. W., Jr., F199
Braun, E. J., F270
Brazy, P. C., F279
Brenner, B. M., F166, F393, F455
Burg, M. B., F141, F480
Burnell, J. M., F432
Camiscoli, J. F., F510
Candia, O. A., F297, F437
Cannon, J. K., F485
Cardinal, J., F381
Carone, F. A., F325
Carretero, O. A., F36
Casey, C., F461
Chapman, S. K., F235
Chin, T. Y., F446
Cho, K. W., F506
Civan, M. M., F261
Cohen, J. J., F291
Danon, A., F64
Dantzler, W. H., F68, F238
Davidman, M., F117
Davis, J. O., F10, F130
Dennis, V. W., F279
Derelanko, M. J., F510
DiBona, G. F., F192
DiScala, V. A., F461
Dousa, T. P., F393
Duarte, C. G., F466
DuBose, T. D., Jr., F97
Duchesneau, D., F381
Evan, A., F146
Feldman, D., F490
Fine, L. G., F16
Fleisch, H., F497
Foster, D. M., F402
Fray, J. C. S., F376
Freeman, R. H., F10, F130
Friedman, M. H., F215
Friedman, P. A., F415
Gandolfi, R., F36
Ganten, D., F41
Ganten, U., F41
Giebisch, G. H., F182
Goldberg, M., F22
Goldfarb, S., F22
Golding, J. M., F302
Goldstein, L., F514
Gordon, A. S., F510
Gougoux, A., F291
Gregg, C. M., F135
Gunther, R. A., F371
Haack, D., F106
Haas, J. A., F287
Handler, J. S., F532
Harvey, K. M. J., F510
Hayslett, J. P., F48, F182
Hill, J. J., F308
Hoffman, W. E., F41
Homsy, E., F106
Hong, S. K., F302
Hoover, M. S., F235
Hopfer, U., F89
Horsburgh, T., F485
Hostetter, T. H., F455
Humes, H. D., F393, F455
Hyde, R. J., F452
Ichikawa, I., F393
Iyengar, R., F247
Jacquez, J. A., F402
Kachadorian, W. A., F461
Kaehny, W. D., F291
Kaplan, S. M., F510
Keiser, H. R., F532
Khosla, M. C., F130
Kirk, K. L., F192
Kleinzeller, A., F424
Kliger, A. S., F48
Knapp, H. R., F64
Knox, F. G., F287
Kohrs, G., F106
Kokko, J. P., F97
Koschier, F. J., F302
Krebs, H. A., F123
Larsen, L. A., F432
Leaf, A., F1
Lee, S. H., F302
Lifschitz, M. D., F171
Lohse, C. L., F452
Loose, D. S., F490
Macknight, A. D. C., F1
Mailman, D. S., F247
Malvin, R. L., F135, F506
Mandin, H., F117
Mapes, J. P., F123
McKinney, T. D., F141
McNamara, E. R., F146
Meagher, R. C., F510
Möhring, B., F106
Möhring, J., F106
Mouw, D. R., F59
Murray, R. D., F506
Nakamura, S., F325
Navar, L. G., F154, F357
Oates, J. A., F64
Oelz, O., F64
Oparil, S., F325
Park, C. S., F506
Patlak, C. S., F340, F480
Petri, M., F106
Phillips, M. I., F41
Pitts, R. F., F485
Preston, C., F497
Pritchard, J. B., F424
Pullman, T. N., F325
Quebbemann, A. J., F446
Quinton, P. M., F255
Rabinowitz, L., F371
Reczek, P. R., F225
Renfro, J. L., F522
Rothmann Hamburger, S. A., F510
Roy, M., F510
Sachs, G., F247
Schaffer, J. A., F332, F340, F349
Schelling, P., F41
Schlondorff, D., F16
Schmid, P. G., F41
Schmidt, R. W., F472
Schoen, H. F., F297
Scicli, A. G., F36
Seldin, D. W., F97
Solomon, S., F318
Song, Y. K., F302
Stein, J. H., F171
Stephens, G. A., F10
Stoll, R. W., F199
Szyjczewicz, J., F207
Tan, S. Y., F490
Tanner, G. A., F112
Testoni, F. J., F452
Thomas, C., F154
Torretti, J., F415
Trizna, W., F16
Troehler, U., F497
Troutman, S. L., F332, F340
Vander, A. J., F59
Vinay, P., F123
Vorherr, H., F318
Vorherr, U. F., F318
Wagner, J., F59
Warnock, D. G., F480
Watkins, B. E., F10
Watkins, M. L., F332
Weber, H., F16
Weinstein, S. W., F207
Welling, D. J., F54, F308
Welling, L. W., F54, F308
Wen, S.-F., F199
Williams, R. H., F154
Willis, L. R., F29
Yum, M. N., F112
Zusman, R. M., F532



American Journal of Physiology: Renal, Fluid and Electrolyte Physiology

VOLUME 3, January-June 1978

Editor: T. E. ANDREOLI

Associate Editors:

J. J. GRANTHAM
F. S. WRIGHT

Editorial Board:

E. L. J. B. BOULPAEP
J. J. COHEN
T. P. DOUSA
J. S. HANDLER

F. G. KNOX
W. E. LASSITER
R. L. MALVIN

C. S. PATLAK
F. C. RECTOR, JR.
R. W. SCHRIER

*Publications Committee of the
American Physiological Society*

S. R. GEIGER
*Publications Manager
and Executive Editor*

W. A. SONNENBERG
Business Manager

A. P. FISHMAN, *Chairman*
R. W. BERLINER
R. M. BERNE

B. B. RAUNER
Production Manager

A. RAEFSKY
Copy Editor

Published monthly by
THE AMERICAN PHYSIOLOGICAL SOCIETY
9650 Rockville Pike, Bethesda, Md. 20014

**COPYRIGHT © 1978 BY
THE AMERICAN PHYSIOLOGICAL SOCIETY, INC.**

**PRINTED IN THE UNITED STATES OF AMERICA
BY WAVERLY PRESS, INC., BALTIMORE, MARYLAND 21202**

Guest Referee Editors

The Publications Committee of the American Physiological Society gratefully acknowledges the services of the following guest referee editors who assisted the Editorial Board in the reviews of manuscripts.

R. G. Abramson	J. D. Conger	J. M. Irish III	H. J. Reineck
S. Adler	H. F. Cserr	J. A. Jacquez	B. R. Rennick
Z. S. Adler	W. H. Dantzer	M. J. Karnovsky	L. Reuss
Q. Al-Awqati	J. O. Davis	A. I. Katz	S. Rostand
E. A. Alexander	V. W. Dennis	L. B. Kirschner	G. Sachs
R. Anderson	G. F. DiBona	S. Klahr	J. A. Schafer
W. J. Arendshorst	J. H. Dirks	J. P. Knochel	B. Schmidt-Nielsen
J. A. L. Arruda	M. J. Dunn	J. P. Kokko	J. Schnermann
N. Bank	B. Edwards	T. A. Kotchen	A. Schwartz
D. W. Barfuss	G. Eknoyan	R. T. Kunau	C. R. Scriber
F. C. Bartter	M. Epstein	N. A. Kurtzman	A. Sebastian
S. B. Baruch	A. J. Erslev	A. Leaf	J. F. Seely
N. Beck	A. Essig	C. P. Lechene	E. E. Selkurt
T. Berl	A. L. Finn	S. Levine	N. J. Siegel
C. Berry	W. Finn	L. S. Lilienfeld	P. Silva
B. Biagi	W. Flamenbaum	R. Luke	M. Silverman
R. Blantz	R. H. Freeman	T. Maack	L. M. Slotkoff
M. P. Bohrer	N. Frega	A. D. C. Macknight	H. W. Sokel
J. Bourdeau	E. D. Fries	D. Maddox	W. S. Spielman
J. J. Bourgoignie	R. Frizzell	H. Mandin	J. H. Stein
R. Bowman	J. C. Frolich	G. R. Marchand	P. R. Steinmetz
S. E. Bradley	J. Galla	T. H. Maren	J. L. Stephenson
E. J. Braun	F. J. Gennari	D. J. Marsh	W. N. Suki
B. M. Brenner	G. H. Giebisch	M. Martinez-Maldonado	L. P. Sullivan
J. R. Briggs	J. R. Gill, Jr.	R. E. McCaa	R. Tannen
F. Bronner	U. P. Gilmore	K. McDonald	A. Taylor
R. E. Bulger	H. Gittleman	J. D. McGiff	B. M. Tune
M. B. Burg	M. Goldberg	B. Misanko	H. Valtin
T. J. Burke	R. B. Gunn	D. E. Mohrman	A. J. Vander
J. M. Burnell	E. Haber	G. H. Mudge	J. B. Van Liew
L. Cabantchik	J. Hall	P. Nakane	E. D. Vaughan, Jr.
O. A. Candia	M. Hanley	R. G. Narins	M. Walser
F. A. Carone	A. Hassid	L. G. Navar	R. W. Walter
P. C. Churchill	J. P. Hayslett	S. Oparil	D. G. Warnock
M. M. Civan	S. C. Hebert	M. W. Overbeck	M. W. Weiner
M. G. Cogan	S. I. Helman	L. M. Peterson	E. J. Weinman
Jordan J. Cohen	J. A. Herd	D. W. Ploth	S. W. Weinstein
G. Coleman	J. T. Higgins, Jr.	H. G. Preuss	T. Welbourne
T. Coleman	H. N. Hulter	J. Puschett	W. E. Yarger
R. E. Colindres	I. Ichikawa	L. Rabinowitz	T. W. Ziegler



American Journal of Physiology: Renal, Fluid and Electrolyte Physiology

No. 1. JANUARY 1978

EDITORIAL REVIEW

The sodium transport pool

A. D. C. Macknight and A. Leaf

F1

Effects of sodium and potassium salts with anions other than chloride on renin secretion in the dog

G. A. Stephens, J. O. Davis, R. H. Freeman, and B. E. Watkins

F10

Vasopressin responsiveness of renal adenylate cyclase in newborn rats and rabbits

D. Schlondorff, H. Weber, W. Trizna, and L. G. Fine

F16

Effects of calcium on renal tubular phosphate reabsorption

S. Goldfarb, P. Bosanac, M. Goldberg, and Z. S. Agus

F22

Aldosterone in the exaggerated natriuresis of spontaneously hypertensive rats

L. R. Willis and J. H. Bauer

F29

Site of formation of kinins in the dog nephron

A. G. Scicli, R. Gandolfi, and O. A. Carretero

F36

Inhibition of drinking in water-deprived rats by combined central angiotensin II and cholinergic receptor blockade

W. E. Hoffman, U. Ganten, M. I. Phillips, P. G. Schmid, P. Schelling, and D. Ganten

F41

Characteristics of potassium secretion in the mammalian colon

C. Bastl, A. S. Kliger, H. J. Binder, and J. P. Hayslett

F48

Physical properties of isolated perfused basement membranes from rabbit loop of Henle

L. W. Welling and D. J. Welling

F54

Effects of prenatal and early postnatal sodium deprivation on subsequent adult thirst and salt preference in rats

D. R. Mouw, A. J. Vander, and J. Wagner

F59

Stimulation of prostaglandin biosynthesis in the renal papilla by hypertonic mediums

A. Danon, H. R. Knapp, O. Oelz, and J. A. Oates

F64

Fluid absorption with and without sodium in isolated perfused snake proximal tubules

W. H. Dantzler and S. K. Bentley

F68

Comparison of renal prostaglandin and *p*-aminohippuric acid transport processes

L. Z. Bito and R. A. Baroody

F80

No. 2. FEBRUARY 1978

EDITORIAL REVIEW

Transport in isolated plasma membranes

U. Hopfer

F89

Segmental chloride reabsorption in the rat nephron as a function of load

T. D. DuBose, Jr., D. W. Seldin, and J. P. Kokko

F97

Effects of prolonged vasopressin treatment in Brattleboro rats with diabetes insipidus

J. Möhring, G. Kohrs, B. Möhring, M. Petri, E. Homsy, and D. Haack

F106

Effects of chronic tubular obstruction in *Necturus* kidney

G. A. Tanner and M. N. Yum

F112

Renal function in dogs with acute cardiac tamponade

H. Mandin and M. Davidman

F117

Fate of glutamine carbon in renal metabolism <i>P. Vinay, J. P. Mapes, and H. A. Krebs</i>	F123
Renal and adrenal responses to [des-Asp ¹]angiotensin I in the dog <i>R. H. Freeman, J. O. Davis, and M. C. Khosla</i>	F130
Localization of central sites of action of angiotensin II on ADH release in vitro <i>C. M. Gregg and R. L. Malvin</i>	F135
Bicarbonate absorption by rabbit cortical collecting tubules in vitro <i>T. D. McKinney and M. B. Burg</i>	F141
Tubular sites of potassium regulation in the normal and uninephrectomized rat <i>H. H. Bengele, A. Evan, E. R. McNamara, and E. A. Alexander</i>	F146
Filtration rate and stop-flow pressure feedback responses to nephron perfusion in the dog <i>P. D. Bell, C. Thomas, R. H. Williams, and L. G. Navar</i>	F154
Mechanism of the glucocorticoid-induced increase in glomerular filtration rate <i>C. Baylis and B. M. Brenner</i>	F166

No. 3. MARCH 1978

EDITORIAL REVIEW

Current concepts on the pathophysiology of acute renal failure <i>J. H. Stein, M. D. Lifschitz, and L. D. Barnes</i>	F171
---	------

Factors influencing transepithelial potential difference in mammalian distal tubule <i>J. P. Hayslett, E. L. Boulpaep, and G. H. Giebisch</i>	F182
Effect of magnesium on sodium transport in toad urinary bladder <i>A. J. Aguilera, K. L. Kirk, and G. F. DiBona</i>	F192
Effect of phosphate deprivation on renal phosphate transport in the dog <i>S.-F. Wen, J. W. Boynar, Jr., and R. W. Stoll</i>	F199
Superficial nephron tubular-vascular relationships in the rat kidney <i>S. W. Weinstein and J. Szyjewicz</i>	F207
Mathematical modeling of transport in structured tissues: corneal epithelium <i>M. H. Friedman</i>	F215
Permeability changes in <i>Necturus</i> proximal tubule during volume expansion <i>C. J. Bentzel and P. R. Reczek</i>	F225
Acetazolamide and renal ammoniogenesis <i>S. K. Chapman and M. S. Hoover</i>	F235
Generation of transepithelial potentials by isolated perfused reptilian distal tubules <i>K. W. Beyenbach and W. H. Dantzler</i>	F238
Purification of distinct plasma membranes from canine renal medulla <i>R. Iyengar, D. S. Mailman, and G. Sachs</i>	F247

SPECIAL COMMUNICATIONS

Techniques for microdrop analysis of fluids (sweat, saliva, urine) with an energy-dispersive X-ray spectrometer on a scanning electron microscope <i>P. M. Quinton</i>	F255
---	------

No. 4. APRIL 1978

EDITORIAL REVIEW

Intracellular activities of sodium and potassium <i>M. M. Civan</i>	F261
--	------

Renal response of the starling (<i>Sturnus vulgaris</i>) to an intravenous salt load <i>E. J. Braun</i>	F270
Characteristics of glucose-phlorizin interactions in isolated proximal tubules <i>P. C. Brazy and V. W. Dennis</i>	F279
Nephron heterogeneity of phosphate reabsorption <i>J. A. Haas, T. Berndt, and F. G. Knox</i>	F287
Influence of steady-state P_{aCO_2} on escape from ADH-induced water retention in the dog <i>W. D. Kaehny, A. Gougoux, and J. J. Cohen</i>	F291
Selective effects of bumetanide on chloride transport in bullfrog cornea <i>O. A. Candia and H. F. Schoen</i>	F297
Effect of SITS on organic anion transport in the rabbit kidney cortical slice <i>S. K. Hong, J. M. Goldinger, Y. K. Song, F. J. Koschier, and S. H. Lee</i>	F302
Phenomenological model relating cell shape to water reabsorption in proximal nephron <i>D. J. Welling, L. W. Welling, and J. J. Hill</i>	F308
Contamination of prolactin preparations by antidiuretic hormone and oxytocin <i>H. Vorherr, U. F. Vorherr, and S. Solomon</i>	F318
Effects of constituent amino acids on tubular handling of microinfused angiotensin II <i>T. N. Pullman, F. A. Carone, S. Oparil, and S. Nakamura</i>	F325
Volume absorption in the pars recta. I. "Simple" active Na^+ transport <i>J. A. Schafer, S. L. Troutman, M. L. Watkins, and T. E. Andreoli</i>	F332
Volume absorption in the pars recta. II. Hydraulic conductivity coefficient <i>J. A. Schafer, C. S. Pallak, S. L. Troutman, and T. E. Andreoli</i>	F340
Volume absorption in the pars recta. III. Luminal hypotonicity as a driving force for isotonic volume absorption <i>T. E. Andreoli and J. A. Schafer</i>	F349
ANNOUNCEMENTS	F356

No. 5. MAY 1978

EDITORIAL REVIEW

Renal autoregulation: perspectives from whole kidney and single nephron studies <i>L. G. Navar</i>	F357
Renal potassium excretion in sheep during sodium sulfate, phosphate, and chloride infusion <i>L. Rabinowitz and R. A. Gunther</i>	F371
Mechanism of increased renin release during sodium deprivation <i>J. C. S. Fray</i>	F376
Effect of potassium on proximal tubular function <i>J. Cardinal and D. Duchesneau</i>	F381
Apparent escape rate of RIHSA and ^{51}Cr -labeled erythrocytes from the blood of volume-expanded rats <i>U. Ackermann</i>	F386
Influence of parathyroid hormone on glomerular ultrafiltration in the rat <i>I. Ichikawa, H. D. Humes, T. P. Dousa, and B. M. Brenner</i>	F393
Comparison using central core model of renal medulla of the rabbit and rat <i>D. M. Foster and J. A. Jacques</i>	F402
Regional glucose metabolism in the cat kidney in vivo <i>P. A. Friedman and J. Torretti</i>	F415
Renal sugar transport in the winter flounder: V. Secretion of 2-deoxy-D-galactose <i>J. B. Pritchard, G. Booz, and A. Kleinzeller</i>	F424
Muscle buffer values <i>L. A. Larsen and J. M. Burnell</i>	F432

Reduction of chloride fluxes by amiloride across the short-circuited frog skin <i>O. A. Candia</i>	F437
Quantitation of renal uric acid synthesis in the chicken <i>T. Y. Chin and A. J. Quebbemann</i>	F446

SPECIAL COMMUNICATIONS

Thermistor use to monitor urine flow rates in dogs <i>R. J. Hyde, C. L. Lohse, and F. J. Testoni</i>	F452
---	------

No. 6. JUNE 1978

EDITORIAL REVIEW

Glomerular permselectivity: barrier function based on discrimination of molecular size and charge <i>B. M. Brenner, T. H. Hostetter, and H. D. Humes</i>	F455
Time course of ADH-induced intramembranous particle aggregation in toad urinary bladder <i>W. A. Kachadorian, C. Casey, and V. A. DiScala</i>	F461
Magnesium metabolism in potassium-depleted rats <i>C. G. Duarte</i>	F466
Factors affecting HCO ₃ reabsorption in experimental renal insufficiency <i>R. W. Schmidt</i>	F472
Contribution of leaked load to solute transport by renal tubules <i>D. G. Warnock, C. S. Patlak, and M. B. Burg</i>	F480
Action of phlorizin on luminal and antiluminal membranes of proximal cells of kidney <i>T. Horsburgh, J. K. Cannon, and R. F. Pitts</i>	F485
Nonsteroidal anti-inflammatory drugs cause sodium and water retention in the rat <i>D. Feldman, D. S. Loose, and S. Y. Tan</i>	F490
Parathyroid hormone and renal handling of P _i : effect of dietary P _i and diphosphonates <i>J.-P. Bonjour, U. Troehler, C. Preston, and H. Fleisch</i>	F497
Renin secretion as a function of renal renin content in dogs <i>C. S. Park, R. L. Malvin, R. D. Murray, and K. W. Cho</i>	F506
Effects of increasing time between nephrectomy and hypoxia on extrarenal erythropoietin <i>S. A. Rothmann Hamburger, S. M. Kaplan, M. J. Derelanko, R. C. Meagher, M. Roy, K. M. J. Harvey, J. F. Camiscoli, and A. S. Gordon</i>	F510
Renal mitochondrial glutamine transport and metabolism: studies with a rapid-mixing rapid-filtration technique <i>L. Goldstein and J. M. Boylan</i>	F514
Calcium transport across peritubular surface of the marine teleost renal tubule <i>J. L. Renfro</i>	F522
Effect of adrenal steroids on vasopressin-stimulated PGE synthesis and water flow <i>R. M. Zusman, H. R. Keiser, and J. S. Handler</i>	F532

ANNOUNCEMENTS

<i>Subject Index to Volume 3</i>	F543
<i>Author Index to Volume 3</i>	F551

Subject Index to Volume 4

- A**
 A23187: *see* Ionophore A23187
 Absorption: *see* specific subject and site
 Acetazolamide
 chloride absorption-base excretion,
 coupling, isolated skin (frog), F33
 cochlear potentials, F317
 potassium reabsorption and secretion,
 perfused kidney (bullfrog), F26
 volume expansion, compensatory
 adaptation, F528
 Acetylcholine
 acute renal failure, norepinephrine-
 induced, F131
 Acid
 secretion, urinary epithelia, hydrogen
 ion transport and, F77
 Acid-base disturbances
 chronic metabolic, plasma anion gap
 changes, F291
 Acidification
 urinary, hydrogen ion transport and,
 F77
 Acidosis
 ammonia metabolism, F265
 gluconeogenic enzymes, distribution,
 nephron, F246
 Acidosis, metabolic
 blood pH, potassium, and phosphorus,
 relationship, F345
 hyperchloremic, plasma anion gap
 changes, F291
 mineral and nonmineral acids, F345
 Acute renal failure: *see* Kidney failure
 Adenosine
 postocclusive renal blood flow, F286
 Adenosine monophosphate, cyclic
 parathyroid hormone effects, glomeruli,
 F458
 prostaglandin effects, glomeruli, F458
 sodium ion transport, bladder (toad),
 F359, F586
 Adenosine triphosphatase: *see* Sodium-
 potassium-ATPase
 Adenyl cyclase
 cyclooxygenase and, in distal nephron,
 F451
 Adenylate cyclase
 prostaglandin-stimulated, glomeruli,
 F458
 stimulation, parathyroid hormone
 (human and bovine), F96
 Adrenergic agonists
 submandibular excretory ducts, F548
 Adrenergic receptor blockade: *see*
 Blockade
 Albumin
 fraction V bovine serum, potassium
 ions, loss, renal tissue, F228
 substrate-free, perfused kidney, F52
 Aldosterone
 angiotensin II hypertension, F174
 cation transport, cortical collecting
 tubules, F576
 hydrogen ion transport, urinary
 epithelia, F77
 sodium transport, bladder (toad), F586
 Alkalosis
 metabolic, plasma anion gap changes,
 F291
 mineralocorticoid, potassium ion
 deprivation, renal, F298
 respiratory, hydrogen ion secretion,
 distal, F203
 Amiloride
 calcium transport, distal nephron, F367
 Amino acids
 infusion, urinary zinc excretion, F40
 metabolism, isolated perfused kidney,
 F376
 p-Aminohippurate
 prostaglandin E excretion, F473
 transport, anaerobic, kidney, F278
 transport, energy-depleted renal cells,
 F278
 p-Aminohippuric acid
 uptake, separated tubules, renal fuels
 for, F137
 Ammonia
 metabolism, F265
 Amphotericin B
 ion permeation, bladder epithelium
 (toad), F507
 Angiotensin
 receptors, blockade: *see* Blockade
 renin release, inhibition, kidney slices,
 F62
 Angiotensin II
 antagonists, hemorrhage, renal, F46
 exogenous and endogenous, isolated
 perfused kidney, F605
 hemorrhage, renal dynamics, F46
 hypertension, renal hemodynamics,
 F174
 postocclusive renal blood flow, F286
 renin release, inhibition, kidney slices,
 F62
 Angiotensin III
 renin release, inhibition, kidney slices,
 F62
 Anion gap
 plasma, in chronic metabolic acid-base
 disturbances, F291
 Anions
 transport, bumetanide effects, proximal
 tubule, F403
 unmeasured, chronic metabolic acid-
 base disturbances, F291
 Antidiuresis
 renal papillary epithelium, F69
 Antidiuretic hormone
 collecting duct alterations,
 intramembranous, F440
 prostaglandin synthesis, renal, F180
 sodium ion transport, bladder (toad),
 F359
 Apparatus and techniques: *see* specific
 subject and site
 Arginine
 metabolism, isolated perfused kidney,
 F376
 Arterial blood pressure: *see* Pressure;
 Blood pressure
 Ascites
 mobilization in cirrhosis, following
 furosemide or mannitol diuresis, F12
 ATPase: *see* Sodium-potassium-ATPase
 Atropine
 sodium transport, cholinergic
 inhibition, bladder (toad), F564
 Autoregulation
 diuresis, exaggerated, in spontaneous
 hypertension, F409
B
 Backflux hypothesis
 sodium-to-chloride permeability,
 proximal convoluted tubule, F592
 Base
 excretion, and chloride absorption,
 coupling, skin (frog), F33
 Basement membrane: *see* Membrane
 Benzolamide
 chloride gradient, thin loop of Henle,
 F192
 Bicarbonate
 ion permeation and, in proximal tubule
 (*Necturus*), F89
 Bladder: *see* Urinary bladder
 Blockade
 α -adrenergic receptors, cardiovascular
 responses, F199
 angiotensin receptors, cardiovascular
 responses, F199
 Blood-brain barrier
 iodide efflux, after injection into
 caudate nucleus, F331
 thiocyanate efflux, after injection into
 caudate nucleus, F331
 Blood flow: *see also* Flow
 Blood flow, renal
 hemorrhage, control, F46
 histamine receptors, F570
 perfusate osmolality, F352
 plasma volume expansion, F156
 postocclusive, F286
 prostaglandin inhibitors, F338
 stop-flow pressure feedback, F352
 Blood pressure: *see also* Pressure
 arterial, angiotensin II hypertension,
 F174
 mesotocin effects (bullfrog), F151
 renal sodium handling and, in
 spontaneous hypertension, F425
 Body fluids: *see* Fluid
 Brain
 iodide efflux after injection into caudate
 nucleus, F331
 thiocyanate efflux after injection into
 caudate nucleus, F331
 Bromide space
 extracellular water measurements,
 F254
 Bumetanide
 anion transport, proximal tubule, F403
 uncoupling of sodium bicarbonate from
 sodium phosphate transport,
 proximal tubule, F403
C
 Calcium
 absorption, parathyroid hormone-
 sensitive, distal nephron, F367
 efflux, nephron, ionophore RO 2-2985
 effect, F381
 prostaglandin E₂ synthesis, medullary,
 F213
 renin release, control, kidney slices
 (pig), F22
 sodium transport, cholinergic

- Calcium (*continued*)
 inhibition, bladder (toad), F564
 transport, distal convoluted tubule, F492
 transport, distal nephron, F367
 Calcium ionophore: *see* Ionophore
 Capillaries
 peritubular, fluid uptake, F142
 permeability: *see* Permeability
 Carbamylcholine
 sodium transport, bladder (toad), F586
 Carbon dioxide tension
 urine-blood gradient, in respiratory alkalosis, F203
 Carbonic anhydrase
 activity, urinary epithelia, hydrogen ion transport and, F77
 cochlear potentials, generation, F317
 Cardiac output
 angiotensin and α -adrenergic receptor blockade, F199
 Cardiovascular system
 angiotensin and α -adrenergic receptor blockade, F199
 Catecholamine precursor
 surgical stress, renal, F542
 Catecholamines
 balance, renal, surgical stress and, F542
 plasma levels, during isotonic volume expansion, F119
 renal handling, surgical stress and, F542
 release, surgical stress, renal, F542
 submandibular excretory ducts, F548
 Cations
 excretion, urinary, mineralocorticoids and, F576
 homeostasis, cortical collecting tubules, F576
 transport, cortical collecting tubules, mineralocorticoids and, F576
 Caudate nucleus
 iodide injection and efflux from brain, F331
 thiocyanate injection and efflux from brain, F331
 Cerebrospinal fluid: *see* Fluid
 Chemical voltage clamp: *see* Voltage clamp
 Chloride
 absorption, and base excretion, coupling, skin (frog), F33
 delivery, distal, F219
 excretion, urinary, regulation, F219
 fluxes, transcellular and paracellular, proximal tubule (*Necturus*), F617
 microcoulometric analysis, F192
 neutral luminal entry, proximal tubule (*Necturus*), F617
 permeability, proximal tubule (*Necturus*), F617
 renin inhibition by sodium chloride, F444
 transepithelial gradient and fractional delivery, thin loop of Henle, F192
 transport, isolated skin (frog), F33
 transport, papillary collecting duct, F219
 Chloride-base exchange
 isolated skin (frog), F33
 Chlorothiazide
 calcium transport, distal convoluted tubule, F492
 sodium transport, distal convoluted tubule, F492
 Cholinergic agents
 sodium transport, bladder (toad), F564
 Chromatography, gas
 mass spectrometry and, prostaglandin synthesis, renal, F180
 Circulation: *see also* Blood flow; Cross-circulation
 portal, potassium reabsorption and secretion (bullfrog), F26
 Cirrhosis
 ascites mobilization following furosemide or mannitol diuresis, F12
 Clamping
 renal artery, two-component natriuretic response to saline loading, F126
 Clearance studies: *see* specific subject and site
 Cochlear potentials
 carbonic anhydrase and, F317
 Collagenase
 renal tubule cell volume, F480
 Collecting ducts: *see* Kidney tubules, collecting
 Colloid osmotic pressure: *see* Pressure
 Compartmental models: *see* Models
 Computer simulation: *see* Models
 Concentrating mechanisms
 urinary, F1
 Concentration gradient
 transepithelial, kidney, F1
 Countercurrent multiplication system
 renal concentrating and diluting processes, F1
 Countercurrent system
 renal, F387
 Coupling
 chloride absorption-base excretion, isolated skin (frog), F33
 stimulus-secretion, renin release, kidney slices (pig), F22
 Cross-circulation studies
 natriuretic factors with reduced nephron mass, F465
 Currents
 transcellular, ion selectivity, proximal, F234
 Cyclic AMP: *see* Adenosine monophosphate, cyclic
 Cyclic GMP: *see* Guanosine monophosphate, cyclic
 Cyclooxygenase
 prostaglandin-forming, immunohistochemical localization, renal cortex, F451
 Cysteine
 infusions, urinary zinc excretion, F40
 Denervation
 renal, hemorrhage, F46
 Deoxycorticosterone acetate
 cation transport, cortical collecting tubules, F576
 renin secretion and distal tubule sodium ions, F611
 Dexamethasone
 cation transport, cortical collecting tubules, F576
 Diabetes insipidus
 prostaglandin synthesis, renal, F180
 Diffusive flux
 ion selectivity, proximal tubule, F234
 Diuresis
 catecholamine plasma levels, F119
 exaggerated, in spontaneous hypertension, F409
 furosemide, ascites mobilization, F12
 mannitol, ascites mobilization, F12
 water, renal papillary epithelium, F69
 Diuretics
 acute renal failure, norepinephrine-induced, F131
 ascites mobilization in cirrhosis, F12
 plasma anion gap changes during chronic metabolic acid-base disturbances, F291
 uncoupling of proximal sodium bicarbonate from sodium phosphate transport, F403
 volume expansion and, interaction, F528
 Dopamine
 plasma levels, isotonic volume expansion and, F119
 surgical stress, renal, F542
 Elastomers
 silicone, potassium ion loss, renal tissue, F228
 Electrochemical gradient
 hydrogen ion transport, urinary epithelia, F77
 Electrolytes
 plasma, chronic metabolic acid-base disturbances, F291
 secretion, angiotensin II hypertension, F174
 transport, submandibular excretory ducts, adrenergic agonists, F548
 Electron microscopy: *see* Microscopy
 Electrophysiological techniques: *see also* specific subject, site, and procedure
 sodium-to-chloride permeability, proximal convoluted tubule, F592
 Electrophysiology: *see* specific subject and site
 Endothelium
 arterial, prostaglandin-forming cyclooxygenase, renal cortex, F451
 Energy
 metabolic, absence of, *p*-aminohippurate transport, kidney, F278
P-Enolpyruvate carboxykinase
 distribution, nephron, in acidosis and starvation, F246
 Enzymes: *see also* specific enzymes
 gluconeogenic, distribution, nephron, in acidosis and starvation, F246
 nephron, F387
 Epinephrine
 renin release, kidney slices (pig), F22
 Epithelium: *see* specific site
 Excretion: *see* specific subject
 Fasting
 gluconeogenic enzymes, distribution, nephron, F246
 Feedback
 macula densa, perfusate osmolality and, F352
 macula densa, plasma expansion and, F156
 stop-flow pressure responses, perfusate osmolality and, F352
 tubuloglomerular, perfusate osmolality and, F352
 tubuloglomerular, plasma volume expansion, F156

- Fetus:** *see also* Placenta
sodium fluxes, bidirectional (sheep), F536
- Filtration:** *see also* Ultrafiltration
- Filtration coefficient**
network thermodynamic model, proximal tubule, F638
- Filtration, glomerular**
angiotensin II, exogenous and endogenous, F605
angiotensin II hypertension, F174
hemorrhage, F46
mesotocin effects (bullfrog), F151
perfusate osmolality, F352
plasma volume expansion, F156
potassium ion loss, renal tissue, F228
potassium, nephron segments, F515
saline loading, developing kidney, F417
stop-flow pressure feedback, F352
sympathetic nerve activity, F557
- Flow:** *see also* Blood flow
isomotic, proximal tubule, network thermodynamic model, F638
urine, renal sympathetic nerve activity, F557
- Fluid**
absorption across membranes, F626
body, angiotensin II hypertension, F174
cerebrospinal, iodide and thiocyanate efflux from brain after injection into caudate nucleus, F331
collecting ducts, delivery, F515
interstitial, renal concentrating and diluting processes, F1
peritubular capillary uptake, F142
renal tubular, transport, F626
transepithelial transport, model, F626
- Freeze-fracture**
antidiuretic hormone-induced intramembranous alterations in collecting ducts, F440
- Fructose-1,6-bisphosphatase**
distribution, nephron, in acidosis and starvation, F246
- Furosemide**
acute renal failure, norepinephrine-induced, F131
calcium transport, distal nephron, F367
chloride transport, papillary collecting duct, F219
diuresis, ascites mobilization, F12
renin secretion and distal tubule sodium ions, F611
volume expansion, compensatory adaptation, F528
- Gas chromatography:** *see* Chromatography
- Glomerulotubular balance**
mechanisms, proximal tubular reabsorption determinants, F142
saline loading, developing kidney, F417
- Glomerulus:** *see also* Feedback; Filtration; Pressure; Receptors
adenylate cyclase, prostaglandin-stimulated, F458
- Gluconeogenesis**
ammonia metabolism, F265
- Gluconeogenic enzymes**
distribution, nephron, in acidosis and starvation, F246
- Glucose**
maximal tubular reabsorption, developing kidney, F417
metabolic and functional effects, perfused kidney, F52
oxidation, renal, F52
phosphate reabsorption, inhibition, kidney, F430
splay, developing kidney, F417
utilization, renal, F52
- Glucose-6-phosphatase**
distribution, nephron, in acidosis and starvation, F246
- Glycine**
infusions, urinary zinc excretion, F40
- Guanidine derivatives**
metabolism, isolated perfused kidney, F376
- Guanosine monophosphate, cyclic**
sodium transport, bladder (toad), F564, F586
sodium transport, cholinergic inhibition, bladder (toad), F564
- Guanosine triphosphate**
prostaglandin-stimulated adenylate cyclase, glomeruli, F458
- H₁, H₂**
agonists, renal, F570
antagonists, renal, F570
receptors: *see* Receptors
- Haloperidol**
catecholamine plasma levels and, F119
isotonic volume expansion and, F119
- Hemodynamics, renal**
angiotensin II, exogenous and endogenous, F605
angiotensin II hypertension, F174
hemorrhage, F46
renovascular hypertension, F310
sympathetic nerve activity, F557
- Hemorrhage**
hemodynamics, renal, control, F46
- Henle's loop**
ascending, sodium excretion, control, F163
phosphate reabsorption, parathyroid hormone effect, F321
potassium transport, F515
thin, chloride, transepithelial gradient and fractional delivery, F152
thin ascending limb, urinary concentrating and diluting processes, F1
- Heterogeneity**
intrarenal, F387
nephron, potassium and, F104
- Histamine**
receptors: *see* Receptors
- Histidine**
infusions, urinary zinc excretion, F40
- Histology:** *see also* Morphology
nephron ultrastructure, F387
renal papillary epithelium, antidiuresis and water diuresis, F69
- Hydrogen ion concentration:** *see* pH
- Hydrogen ions**
secretion, distal, in respiratory alkalosis, F203
- Hydrogen ions, transport**
urinary acidification and, F77
urinary, electrochemical gradient, F77
urinary epithelia, F77
- Hydrostatic pressure:** *see* Pressure
- Hypercapnia**
cochlear potentials, F317
- Hyperchloremic metabolic acidosis:** *see* Acidosis, metabolic
- Hypertension**
angiotensin II-induced, renal hemodynamics, F174
renovascular, kidney function, F310
two-kidney, renal function, F310
- Hypertension, spontaneous**
blunted norepinephrine natriuresis, F425
diuresis, exaggerated, F409
sodium, renal handling, F394
- Immunohistochemistry**
prostaglandin-forming cyclooxygenase, localization in renal cortex, F451
- Indomethacin**
organic acid secretory pathway and prostaglandin E excretion, F473
renal effects, F111
sodium excretion, F338
- Insulin**
metabolic and functional effects, perfused kidney, F52
- Intercellular spaces, lateral**
sodium-to-chloride permeability, proximal convoluted tubule, F592
- Interstitial fluid:** *see* Fluid
- Interstitial pressure:** *see* Pressure
- Iodide**
efflux, brain, after injection into caudate nucleus, F331
- Ionophore A23187, calcium**
prostaglandin E₂ synthesis, medullary, F213
sodium transport, bladder (toad), F586
- Ionophore RO 2-2985**
calcium efflux, nephron, F381
- Ions**
inorganic, *p*-aminohippurate transport, kidney, F278
permeation, bladder, amphotericin B effects (toad), F507
permeation, proximal tubule (*Necturus*), F89
potential differences, proximal tubule (*Necturus*), F89
- Ions, selectivity**
diffusive flux, F234
proximal salt reabsorption and, F234
proximal, transcellular current, F234
superficial, juxtamedullary, paracellular pathway, F234
- Ions, transport**
bladder epithelium (toad), F507
distal nephron, F367
- Ischemia, renal**
furosemide and acetylcholine effects, F131
postocclusive renal blood flow, F286
- Isobutylmethylxanthine**
sodium transport, bladder (toad), F586
- Isosmotic flow**
proximal tubule, network thermodynamic model, F638
- Isotonic transport**
proximal tubule, network thermodynamic model, F638
- Isotonic volume expansion:** *see* Volume expansion
- Junctional complexes**
sodium-to-chloride permeability, proximal convoluted tubule, F592
- Juxtaglomerular cells**
renin release, inhibition, angiotensins, F62

Juxtaglomerular complex
 perfusate osmolality and feedback
 responses, F352
 Juxtamedullary descending thin limb: *see*
 Henle's loop

Kaliuresis

nephron mass, reduced, cross-
 circulation study, F465

Kidney

p-aminohippurate transport, anaerobic,
 F278
 angiotensin II, exogenous and
 endogenous, F605
 arginine metabolism, F376
 blood flow: *see* Blood flow
 blunted norepinephrine natriuresis, F425
 catecholamines, surgical stress, F542
 concentration gradient, transepithelial,
 F1
 countercurrent multiplication system,
 F1
 countercurrent system, F387
 developing, glomerulotubular balance
 after saline loading, F417
 feedback: *see* Feedback
 fuels, *p*-aminohippuric acid uptake,
 F137
 fuels, uric acid uptake, F137
 function, histamine receptors, F570
 function, renovascular hypertension,
 F310
 gluconeogenic enzymes, distribution,
 F246
 glucose, metabolic and functional
 effects, F52
 hemodynamics: *see* Hemodynamics
 hemorrhage, hemodynamics, control,
 F46
 Henle's loop: *see* Henle's loop
 heterogeneity, F104, F387
 histamine H₁ and H₂ receptors,
 characterization and function, F570
 insulin, metabolic and functional
 effects, F52
 insulin-sodium ion transport, F52
 ion permeation, electrophysiology
 (*Necturus*), F89
 ischemic insult, furosemide and
 acetylcholine effects, F131
 mesotocin effects (bullfrog), F151
 mineralocorticoid alkalosis, potassium
 ion deprivation and, F298
 mitochondria: *see* Mitochondria
 oxidative metabolism, F137
 phosphate reabsorption, glucose-
 mediated inhibition, F430
 plasma expansion, F156
 potassium ions, loss, lactate and
 albumin effects, F228
 potassium reabsorption and secretion
 (bullfrog), F26
 potassium transport, contributions of
 individual nephron segments and
 populations, F515
 pressure: *see* Pressure
 progressive insufficiency, potassium
 transfer, distal tubular, F186
 prostaglandins: *see* Prostaglandins
 prostaglandin synthetase inhibition,
 F111
 remnant, natriuretic factors with
 reduced nephron mass, F465
 renin: *see* Renin
 sodium: *see* Sodium
 three-compartment model, F1

tricarboxylic acid intermediates, F137
 urinary concentrating and diluting
 mechanisms, F1
 vasodilation: *see* Vasodilation
 Kidney cells
 energy-depleted, *p*-aminohippurate
 transport, F278
 Kidney cortex: *see also* Kidney tubules,
 collecting
 prostaglandin-forming cyclooxygenase,
 histochemical localization, F451
 Kidney failure, acute
 acetylcholine effects, F131
 furosemide effects, F131
 norepinephrine-induced, F131
 Kidney medulla
 interstitium, urinary concentrating and
 diluting processes, F1
 prostaglandin E₂ synthesis, calcium
 effects, F213
 Kidney papilla
 antidiuresis and water diuresis,
 epithelial morphology, F69
 collecting duct, chloride transport, F219
 concentrating mechanism, epithelial,
 F69
 intercellular spaces, epithelial, F69
 Kidney tubules
 cation transport, F576
 cell volume, ouabain and colloid
 osmotic pressure effects, F480
 fluid transport, transepithelial, model,
 F626
 gluconeogenic enzymes, distribution,
 F246
 glucose reabsorption, maximal, after
 saline loading, developing kidney,
 F417
 permeability: *see* Permeability
 prostaglandin synthetase inhibition,
 F111
 separated, *p*-aminohippuric acid
 uptake, renal fuels for, F137
 separated, uric acid uptake, renal fuels
 for, F137
 sodium reabsorption, sympathetic
 nerve activity, F557
 volume regulation, F480
 Kidney tubules, collecting
 antidiuretic hormone-induced
 intramembranous alterations, F440
 membrane particle clusters, F440
 chloride transport, papillary, F219
 fluid delivery, potassium transport and,
 F515
 sodium excretion, control, F163
 Kidney tubules, collecting, cortical
 cation transport, mineralocorticoid
 effects, F576
 cell volume, ouabain and colloid
 osmotic pressure effects, F480
 potassium addition, F104
 potassium transfer, F186
 prostaglandin-forming cyclooxygenase,
 F451
 Kidney tubules, distal
 cell volume, ouabain and colloid
 osmotic pressure effects, F480
 chloride delivery, F219
 phosphate reabsorption, parathyroid
 hormone effect, F321
 potassium transfer, normal and
 remnant kidneys, F186
 potassium transport, nephron segments
 and, F515
 sodium handling, Kyoto-Okamoto rats,
 F394

sodium ions, renin secretion and, F611
 superficial, net potassium addition,
 F104
 Kidney tubules, distal convoluted
 calcium transport, F492
 calcium transport, parathyroid
 hormone-sensitive, F367
 sodium transport, F492
 Kidney tubules, proximal
 cell volume, ouabain and colloid
 osmotic pressure effects, F480
 chloride, labeled, transcellular and
 paracellular fluxes (*Necturus*), F617
 electrically silent fluxes (*Necturus*),
 F617
 ion permeation (*Necturus*), F89
 peritubular capillary fluid uptake, F142
 peritubular capillary permeability
 coefficient, F142
 phosphate reabsorption, parathyroid
 hormone effect, F321
 potassium transport, nephron segments
 and, F515
 reabsorption determinants, as
 mechanisms of glomerulotubular
 balance, F142
 salt and water flow, epithelial, network
 thermodynamic model, F638
 sodium excretion, control, F163
 uncoupling of sodium bicarbonate from
 sodium phosphate transport by
 bumetanide, F403
 Kidney tubules, proximal convoluted
 ion selectivity, salt reabsorption and,
 F234
 sodium-to-chloride permeability, F592
 Kinetics: *see* specific subject and site

Lactate

potassium ions loss, renal tissue, F228
 Lanthanum chloride
 sodium transport, cholinergic
 inhibition, bladder (toad), F564
 Liver disease
 ascites mobilization following
 furosemide or mannitol diuresis, F12
 Loading
 saline: *see* Saline
 sodium ion, renin secretion and, F611
 Loop of Henle: *see* Henle's loop

Macula densa

feedback: *see* Feedback
 renin inhibition, chloride and, F444
 renin secretion, distal tubule sodium
 ions and, F611

Mannitol

diuresis, ascites mobilization, F12
 phosphate reabsorption, renal, F430
 Mass spectrometry: *see* Spectrometry
 Meclofenamate
 renal effects, F111
 sodium excretion and, F338
 Membranes
 basement, renal tubule cell, volume
 regulation, F480
 fluid absorption, transepithelial, F626
 particle clusters, collecting ducts, F440
 potentials: *see* Potentials
 proximal tubular transport, network
 thermodynamic model, F638

Mesotocin

renal and vascular responses (bullfrog),
 F151
 Metabolic acidosis: *see* Acidosis

- Metabolic alkalosis: *see* Alkalosis
 Metabolism: *see* specific subject and site
 Methazolamide
 cochlear potentials, F317
 Microcoulometric analysis
 chloride, thin loop of Henle, F192
 Microelectrodes
 cochlear potentials, F317
 Microinjection
 calcium efflux, nephron, ionophore RO 2-2985 effect, F381
 tracer, glucose-mediated inhibition of phosphate reabsorption, kidney, F430
 Microperfusion
 adrenergic agonists, submandibular excretory ducts, F548
 Micropuncture
 calcium transport, distal convoluted tubule, F492
 chloride transport, papillary, F219
 interstitial pressure, renal, during volume expansion, F209
 plasma volume expansion, renal and tubuloglomerular feedback responses, F156
 potassium addition beyond superficial distal tubule, F104
 potassium transfer, distal tubular, F186
 prostaglandin synthetase inhibition, renal, F111
 renal, perfusate osmolality and tubuloglomerular feedback responses, F352
 renin secretion and distal tubule sodium ions, F611
 sodium, renal handling, in Kyoto-Okamoto rats, F394
 sodium transport, distal convoluted tubule, F492
 uncoupling of proximal sodium bicarbonate from sodium phosphate transport by bumetanide, F403
 Microscopy, electron
 renal papillary epithelium, antidiuresis and water diuresis, F69
 Microspheres
 histamine receptors, renal, F570
 Mineral acids
 metabolic acidosis, F345
 Mineralocorticoids
 alkalosis, renal, potassium ion deprivation, F298
 cation transport, cortical collecting tubules, F576
 Mitochondria, renal
 ammonia metabolism, F265
 Models
 compartmental, pharmacokinetic, extracellular water measurements, F254
 fluid transport, transepithelial, F626
 proximal tubule, network thermodynamic model of salt and water flow, F638
 three-compartment, renal concentrating and diluting processes, F1
 Morphology: *see also* Histology
 renal papillary epithelial, antidiuresis and water diuresis, F69
 Natriocentric theory
 transepithelial fluid transport, F626
 Natriuresis
 blunted, norepinephrine effects, in spontaneous hypertension, F425
 exaggerated, in spontaneous hypertension, F409
 interstitial pressure, renal, F209
 nephron mass, reduced, cross-circulation study, F465
 renal sympathetic nerve activity, F557
 two-component response to saline loading, F126
 Nephrectomy
 unilateral, volume expansion, compensatory adaptation, F528
 Nephron
 calcium efflux, ionophore RO 2-2985 effect, F381
 corticomedullary, prostaglandin synthetase inhibition, F111
 differentiation, principles, F387
 enzymes, F387
 epithelial transport, F387
 gluconeogenic enzymes, distribution in acidosis and starvation, F246
 heterogeneity, potassium and, F104
 ion permeation (*Necturus*), F89
 natriuretic factors with reduced mass, F465
 segments, individual, in potassium transport, F151
 ultrastructure, F387
 Nephron, distal
 adenyl cyclase, F451
 calcium transport, F367
 hydrogen ion secretion, respiratory alkalosis, F203
 prostaglandin-forming cyclooxygenase, F451
 prostaglandin synthetase inhibition, F111
 Neurohypophysis
 mesotocin (bullfrog), F151
 Newborn
 glomerulotubular balance, saline loading effects, F417
 Nonmineral acids
 metabolic acidosis, F345
 Norepinephrine
 acute renal failure, furosemide and acetylcholine effects, F131
 natriuresis, blunted, in isolated spontaneously hypertensive kidney, F425
 renin release, inhibition by angiotensins, kidney slices, F62
 Occlusion: *see* site
 Oncotic pressure: *see* Pressure
 Organic acid
 secretory pathway, blockade, F473
 secretory pathway, prostaglandin E excretion, F473
 Osmolality
 perfusate, stop-flow pressure feedback responses, F352
 perfusate, tubuloglomerular feedback responses, F352
 Osmotic pressure: *see* Pressure
 Ouabain
 renin release, kidney slices (pig), F22
 tubular cell volume regulation, F480
 Oxidation
 glucose, renal, F52
 Oxidative metabolism
 renal, F137
 angiotensins, kidney slices, F62
 Paracellular pathway
 sodium-to-chloride permeability, proximal convoluted tubule, F592
 Parathyroid hormone
 1-84 bovine, F96
 1-34 human, F96
 adenylate cyclase stimulation, glomeruli, F458
 calcium transport, distal nephron, F367
 glomerular cyclic AMP, F458
 glomerular receptors (human and bovine), F96
 phosphate reabsorption, distal convoluted, F321
 Pentobarbital
 sodium transport, cholinergic inhibition, bladder (toad), F564
 Pentose shunt
 hydrogen ion transport, urinary epithelia, F77
 Perchlorate
 iodide and thiocyanate efflux, brain, F331
 Perfusate osmolality: *see* Osmolality
 Perfusion: *see* specific subject and site
 Peripheral resistance: *see* Resistance
 Permeability
 calcium, tubular, ionophore RO 2-2985 effect, F381
 chloride, proximal tubule (*Necturus*), F617
 ions, bladder, effects of amphotericin B (toad), F507
 ions, proximal tubule (*Necturus*), F89
 peritubular capillary, coefficient, F142
 proximal tubule, network thermodynamic model, F638
 transepithelial, proximal tubule (*Necturus*), F89
 pH
 blood, and potassium and phosphorus, relationship during metabolic acidosis, F345
 plasma, chronic metabolic acid-base disturbances, F291
 Pharmacokinetic compartmental model: *see* Models
 Phenoxylbenzamine
 cardiovascular responses, F199
 Phosphate
 hydrogen ion secretion, respiratory alkalosis, F203
 reabsorption, distal convoluted, parathyroid hormone effects, F321
 reabsorption, glucose-mediated inhibition, kidney, F430
 Phosphorus
 potassium and, during metabolic acidosis, F345
 Placenta: *see also* Fetus
 electrical potential difference, sodium fluxes and (sheep), F536
 sodium fluxes, bidirectional, epithelial (sheep), F536
 Plasma: *see also* specific constituent and site
 anion gap in chronic metabolic acid-base disturbances, F291
 volume: *see* Volume
 volume expansion: *see* Volume expansion
 Polypeptides
 urinary zinc excretion, F40
 Portal circulation
 potassium reabsorption and secretion (bullfrog), F26

Potassium: see also Sodium-potassium-ATPase

- excretion, albumin effects, F228
- excretion, lactate effects, F228
- net addition beyond superficial distal tubule, F104
- phosphorus and, during metabolic acidosis, F345
- reabsorption, kidney, perfused (bullfrog), F26
- secretion, cortical collecting tubules, F576
- secretion, kidney, perfused (bullfrog), F26
- secretion, mineralocorticoids and, F576
- transport, distal tubular, normal and remnant kidneys, F186
- transport, kidney, contributions of individual nephron segments and populations, F515
- transport, kidney, perfused (bullfrog), F26

Potassium ions

- deprivation, mineralocorticoid alkalosis, renal, F298
- loss, albumin effects, F228
- loss, perfused kidney, F228
- loss, lactate effects, F228
- tissue maintenance, perfused kidney, F52, F228

Potentials

- cochlear, carbonic anhydrase and, F317
- ion permeation, proximal tubule (*Necturus*), F89
- membrane, *p*-aminohippurate transport, energy-depleted renal cells, F278
- placenta, sodium fluxes and (sheep), F536

Pressure: see also Blood pressure

- central venous, catecholamine plasma levels, F119
- colloid osmotic, renal and tubuloglomerular feedback responses, F156
- colloid osmotic, renal tubule cell volume regulation, F480
- glomerular, feedback responses, perfusate osmolality and, F352
- hydrostatic, renal, during volume expansion, F209
- interstitial, renal, during volume expansion at reduced renal artery pressure, F209
- interstitial, renal, glomerulotubular balance and, F142
- oncotic, renal, during volume expansion, F209
- renal artery, and interstitial pressure during volume expansion, F209
- stop-flow, feedback responses, perfusate osmolality and, F352
- stop-flow, renal and tubuloglomerular feedback responses, F156

Prostacyclin

- adenylate cyclase stimulation, glomeruli, F458

Prostaglandin E

- excretion, organic acid secretory pathway in, F473

Prostaglandin E₂

- synthesis, medullary, calcium effects, F213
- synthesis, renal, antidiuretic hormone effects, F180

Prostaglandin synthetase

- inhibition, renal effect, F111

Prostaglandins

- adenylate cyclase stimulation, glomeruli, F458
- formation, cyclooxygenase and, renal cortex, F451
- glomerular cyclic AMP, F458
- inhibition, hemorrhage, renal, F46
- inhibitors, renal sodium excretion and, F338
- postocclusive renal blood flow, F286
- synthesis, renal, antidiuretic hormone and, F180

Proteins

- plasma, in chronic metabolic acid-base disturbances, F291

Pyruvate carboxylase

- distribution, nephron, in acidosis and starvation, F246

Radionuclide studies: see specific subject and site

Reabsorption: see specific subject and site

Receptors

- α -adrenergic, blockade: see Blockade
- angiotensin, blockade: see Blockade
- glomerular, for parathyroid hormone, F96
- histamine H₁ and H₂, renal, characterization and function, F570

Reflection coefficient

- proximal tubule, network thermodynamic model, F638

Renal artery

- clamping, two-component natriuretic response to saline loading, F126
- occlusion, blood flow responses, F286
- pressure: see Pressure

Renal nerves

- hemorrhage, renal dynamics, F46
- postocclusive renal blood flow, F286
- sodium reabsorption, tubular, F557

Renal vein

- occlusion, partial, glomerulotubular balance and, F142

Renin

- inhibition, chloride and, F444
- plasma activity, chloride and, F444
- plasma activity, renovascular hypertension, F310
- release, calcium control, kidney slices (pig), F22
- release, EDTA and EGTA, kidney slices (pig), F22
- release, inhibition, renal, angiotensins II and III, F62
- secretion, distal tubule sodium ions and, F611

Renin-angiotensin system

- hypertension, renal hemodynamics, F174

Renovascular hypertension: see Hypertension

Resistance

- peripheral, angiotensin and α -adrenergic receptor blockade, F199

Respiratory alkalosis: see Alkalosis

RO 2-2985: see Ionophore RO 2-2985

Saline loading

- glomerulotubular balance and, developing kidney, F417
- renal sodium handling and, F394
- two-component natriuretic response, F126

Salivary ducts

- adrenergic agonists, F548

Salt

- and water homeostasis, renovascular hypertension, F310
- flow, proximal tubular, network thermodynamic model, F638
- reabsorption, proximal, ion selectivity and, 234

Saralasin

- cardiovascular responses, F199
- renin release, inhibition, kidney slices, F62

Shunts

- pentose, hydrogen ion transport, urinary epithelia, F77

Silicone elastomers

- potassium ions loss, renal tissue, F228

Skin

- isolated, chloride absorption-base excretion coupling (frog), F33

Sodium

- absorption, mineralocorticoids and, F576
- absorption, cortical collecting tubules, F576
- balance, and excretion, control, F163
- depletion, cardiovascular responses, F199
- fluxes, bidirectional, placental (sheep), F536
- fluxes, ratio, placenta (sheep), F536
- permeability, chloride and, proximal convoluted tubule, F592
- renal handling, blood pressure and, F425
- renal handling, hypertensive and normotensive rats, F394
- renal tissue, potassium ion loss, F228
- retention, mechanisms, in renovascular hypertension, F310

Sodium bicarbonate

- uncoupling from sodium phosphate, proximal tubules, by bumetanide, F403

Sodium chloride

- deprivation, renin secretion and, F611
- loading, renin secretion and, F611
- renin inhibition, F444

Sodium excretion

- control, F163
- developing kidney, F417
- hypertensive and normotensive rats, F394
- prostaglandin inhibitors and, F338
- renovascular hypertension, F310
- two-component natriuretic response, F126

Sodium ions

- transport, insulin and, perfused kidney, F52
- transport, tetracycline-induced inhibition, bladder (toad), F359

Sodium phosphate

- uncoupling from sodium bicarbonate, proximal tubules, by bumetanide, F403

Sodium-potassium-ATPase

- nephron, F387

Sodium reabsorption

- distal convolution, parathyroid

- hormone effect, F321
 potassium ion loss, renal tissue, F228
 tubular, sympathetic nerve activity, F557
Sodium transport
 carbamylcholine inhibition, bladder (toad), F586
 cholinergic agents, bladder (toad), F564
 cyclic GMP, bladder (toad), F586
 distal convoluted tubule, F492
 norepinephrine effects, renal, F425
 renal, spontaneous hypertension, F425
Spectrometry, mass
 prostaglandin synthesis, renal, F180
Starling forces
 interstitial pressure during volume expansion, F209
Starvation: see Fasting
Stellate ganglion
 sodium reabsorption, tubular, F557
Stimulus-secretion coupling
 renin release, kidney slices (pig), F22
Stop-flow pressure: see Pressure
Stress, surgical
 catecholamines, renal handling, F542
Submandibular glands
 adrenergic agonists, excretory ducts, F548
Sucrose space
 extracellular water measurements, F254
Surgical stress
 catecholamines, renal handling, F542
Sympathetic nerves
 renal, sodium reabsorption, F557

T
Tetracaine
 prostaglandin E₂ synthesis, medullary, F213
Tetracycline
 sodium ion transport, inhibition, bladder (toad), F359
Thermodynamics
 network model, salt and water flow, proximal tubule, F638
Thiocyanate
 efflux, brain, after injection into caudate nucleus, F331
Three-compartment model: see Models
Thyroparathyroidectomy
 glucose-mediated inhibition of phosphate reabsorption, renal, F430
 phosphate reabsorption, distal convoluted, F321
Tracers: see also specific site and subject
 kinetics, extracellular water measurements, F254
Tricarboxylic acid cycle
 ammonia metabolism, F265
 intermediates, renal, F137
Tris
 hydrogen ion secretion, distal, in respiratory alkalosis, F203
Tubuloglomerular feedback: see Feedback

U
Ultrafiltration
 zinc, serum, F40
Ultrastructure: see Histology; Morphology
Uncoupling
 proximal sodium bicarbonate from sodium phosphate transport by bumetanide, F403
Urea
 antidiuresis and water diuresis, renal papillary epithelium, F69
Urea cycle
 arginine metabolism, renal, F376
Uric acid
 uptake, separated tubules, renal fuels for, F137
Urinary acidification: see Acidification
Urinary bladder
 epithelial electrophysiology (toad), F507
 ion permeation, epithelial, effects of amphotericin B (toad), F507
 ion transport, epithelial (toad), F507
 sodium ion transport, tetracycline-induced inhibition (toad), F359
 sodium transport, carbamylcholine inhibition (toad), F586
 sodium transport, cholinergic agents (toad), F564
 sodium transport, cyclic GMP (toad), F586
Urinary concentrating mechanism
 thin loop of Henle, F192
Urinary constituents or excretion: see specific substance
Urinary epithelia
 hydrogen ion transport, F77
Urine flow
 renal sympathetic nerve activity, F557

V
Vasa recta
 chloride, analysis, F192
Vascular responses
 renal, mesotocin (bullfrog), F151
Vasodilation
 renal, acute renal failure, norepinephrine-induced, F131
Vasopressin
 sodium ion transport, bladder (toad), F359
 sodium transport, bladder (toad), F586
Veins
 angiotensin and α -adrenergic receptor blockade, F199
Verapamil
 prostaglandin E₂ synthesis, medullary, F213
Voltage clamp
 chemical, chloride fluxes, proximal tubule (*Necturus*), F617
Volume
 plasma, ascites mobilization, diuresis and, F12
 renal tubule cell, ouabain and colloid osmotic pressure effects, F480
 renal tubules, regulation, F480
Volume expansion
 diuresis, exaggerated, in spontaneous hypertension, F409
 diuretics and compensatory adaptation, interactions, F528
 interstitial pressure, renal, F209
 isotonic, catecholamine plasma levels, F119
 plasma, renal responses, F156
 plasma, tubuloglomerular feedback responses, F156
 two-component natriuretic response, F126

W
Water
 diuresis, renal papillary epithelium, F69
 excretion, renovascular hypertension, F310
 extracellular, measurement, F254
 flow, proximal tubular, network thermodynamic model, F638
 free, clearance, renin inhibition by chloride and, F444

Z
Zinc
 concentration, serum, ultrafilterable, F40
 excretion, urinary, amino acid infusions, F40
 excretion, urinary, zinc sulfate infusions, F40
Zinc sulfate
 infusions, urinary zinc excretion, F40



Author Index to Volume 4

- Adrogué, H. J., F291
 Al-Awqati, Q., F77
 Alpert, B. E., F458
 Altschuler, P., F338
 Anagnostopoulos, T., F89
 Anderson, R. J., F46
 Andreoli, T. E., F1
 Arant, B. S., Jr., F417
 Ardaillou, R., F96
 Arruda, J. A. L., F203
 Arslan, Y., F528
 Balfe, J. W., F174
 Banks, R. O., F570
 Battilana, C. A., F192
 Bell, P. D., F352
 Bell, T. G., F451
 Berl, T., F46
 Berliner, R. W., F1
 Berman, B. J., F331
 Berry, C. A., F234, F592
 Bhattacharya, J., F192
 Black, A. J., F52, F228
 Blantz, R. C., F142
 Bonvalet, J. P., F394
 Bonventre, J. V., F69
 Borucki, L. J., F199
 Boumendil-Podevin, E. F., F278
 Boyd, R. D. H., F536
 Brensilver, J., F291
 Bresler, E. H., F626
 Burch, H. B., F246
 Burg, M. B., F576
 Buu, N. T., F542
 Cafisch, C. R., F126
 Carrière, S., F119
 Chansel, D., F96
 Choi, S., F246
 Chu, C., F246
 Churchill, M. C., F611
 Churchill, P. C., F611
 Cohen, J. J., F52, F228
 Colindres, R. E., F321
 Corman, B., F430
 Cortell, S., F126
 Costanzo, L. S., F492
 Cox, M., F359
 Cronin, R. E., F131
 Cserr, H. F., F331
 Daigneault, A., F119
 Dávalos, M., F605
 Davis, B. B., F213
 Davis, J. O., F310
 De Champplain, J., F119
 Deeds, D. G., F26
 DeForrest, J. M., F310
 Denniss, A. R., F548
 De Rouffignac, C., F430
 De Torrente, A., F131
 De Wardener, H. E., F163
 DiBona, G. F., F409, F557
 Diezi, J., F528
 DiScala, V. A., F440
 DuBose, T. D., Jr., F219
 Edelman, A., F89
 Ehrenfeld, J., F33
 Epstein, M., F376
 Erickson, A. L., F131
 Espeland, M. A., F52
 Fagioli, S., F246
 Farman, N., F394
 Feldstein, M. L., F52
 Finn, A. L., F507
 Fondacaro, J. D., F570
 France, R., F180
 Freeman, R. H., F310
 Frega, N. S., F605
 Frölich, J. C., F180
 Galla, J. H., F444
 Garcia-Romeu, F., F33
 Gatzky, J. T., F507
 Gelbart, D. R., F192
 Gennari, F. J., F126
 Giebisch, G., F515
 Gregg, C. M., F52, F228
 Guyton, A. C., F174
 Guzzo, J., F359
 Hall, J. E., F174
 Handler, J. S., F586
 Harmanci, M. C., F440
 Haygood, C. C., F40
 Henrich, W. L., F46
 Hesck, R. D., F96
 Higashihara, E., F219
 Hollenberg, N. K., F199
 Honrath, U., F465
 Horster, M., F387
 Hulter, H. N., F298
 Ince, A., F381
 Jacobson, E. D., F570
 Jain, R. K., F254
 Jamison, R. L., F192
 Jueppner, H., F96
 Kachadorian, W. A., F440
 Karnovsky, M. J., F69
 Kauker, M. L., F111
 Kelly, A. B., F359
 Kimura, G., F617
 King, R. W., Jr., F40
 Kippen, I., F137
 Kirchner, K. A., F444
 Klahr, S., F338, F564
 Klinenberg, J. R., F137
 Knight, T. F., F381
 Kokko, J. P., F1, F219
 Kotchen, T. A., F444
 Kraikitanitch, S., F40
 Kuchel, O., F542
 Kunau, R. T., Jr., F186
 Kurtzman, N. A., F203
 Lacy, F. B., F192
 Lalumière, G., F119
 Lassiter, W. E., F321
 Leaf, A., F605
 Lechene, C. P., F69, F321
 Lefavour, G. S., F126
 Levenson, D., F199
 Levy, M., F12
 Lifschitz, M. D., F473
 Lindeman, R. D., F40
 Linshaw, M. A., F480
 Loutzenhiser, R., F376
 Lowry, O. H., F246
 Luke, R. G., F444
 Madias, N. E., F291
 Malvin, R. L., F22
 Marchand, G. R., F209
 Marsh, D. J., F1
 McCaa, R. E., F174
 McCarthy, W., F246
 McDonald, F. D., F611
 McDonald, K. M., F46
 Merckens, L. S., F228
 Mikulecky, D. C., F638
 Miller, P. D., F131
 Naftilan, A. J., F62
 Narins, R. G., F246
 Navar, L. G., F156, F352
 Oparil, S., F62
 Osgood, R. W., F104
 Osswald, H., F286
 Oster, J. R., F345
 Pang, P. K. T., F151
 Park, C. S., F22
 Pastoriza-Muñoz, E., F321
 Patak, R. V., F473
 Paulsen, P. E., F131
 Perez, G. O., F345, F376
 Peters, G., F528
 Peterson, O. W., F228
 Pierson, R. N., Jr., F254
 Plath, D. W., F156, F352
 Podevin, R. A., F278
 Poujeol, P., F430
 Prazma, J., F317
 Price, D. C., F254
 Priol, C., F278
 Prosnitz, E. H., F557
 Puschett, J. B., F403
 Rector, F. C., Jr., F234, F592
 Reineck, H. J., F104
 Reuss, L., F507
 Richard, C., F12
 Rietberg, B., F376
 Rios, L. L., F409
 Roman, R. J., F111
 Roseman, M. K., F203
 Rosenbaum, R., F338
 Rosenblatt, S. G., F473
 Rudolph, J., F156
 Sahib, M. K., F586
 Saker, B., F605
 Salgado, H. C., F174
 Sawyer, W. H., F151
 Schlondorff, D., F458
 Schneyer, L. H., F548
 Schrier, R. W., F46, F131
 Schwaiger, M. M., F570
 Schwartz, G. J., F576
 Schwartz, J. H., F586
 Sebastian, A., F298
 Sehy, J. T., F203
 Senekjian, H. O., F381
 Shareghi, G. R., F367
 Sigala, J. F., F298
 Singer, I., F359
 Sinha, S., F564
 Slatopolsky, E., F338
 Smigel, M., F180
 Smith, W. L., F451
 Spevack, S., F126
 Spielman, W. S., F286
 Spring, K. R., F617
 Sraer, J., F96
 Sraer, J. D., F96
 Stacey, T. E., F536
 Stapleton, F. B., F480
 Steele, T. H., F425
 Stein, J. H., F104
 Stephens, G. A., F310
 Stoner, L. C., F367
 Sucanthapree, C., F548
 Sullivan, L. P., F26
 Sylk, D., F403
 Tannen, R. L., F265
 Teredesai, P. R., F403
 Thomas, C. E., F156, F352
 Thomas, S. R., F638
 Touvas, C., F430
 Tucker, B. J., F142
 Underwood, J. L., F425
 Unger, T., F542
 Vaamonde, C. A., F345
 Valtin, H., F440
 Vandewalle, A., F394
 Walker, L. A., F180
 Wang, J., F254
 Ward, R. H. T., F536
 Warnock, D. G., F234
 Watkins, B. E., F310
 Weedon, A. P., F536
 Weinman, E. J., F381
 Welling, D. J., F26
 Whinnery, M. A., F186
 Whorton, A. R., F180
 Wiesmann, W., F564
 Wilson, D. R., F465
 Windhager, E. E., F492
 Wright, F. S., F515
 Yates, J., F564
 Yoo, P., F458
 Young, J. A., F548
 Yunice, A. A., F40
 Zamlauskis, M. J., F228
 Zenser, T. V., F213



American Journal of Physiology: Renal, Fluid and Electrolyte Physiology

VOLUME 4, July-December 1978

Editor: T. E. ANDREOLI

Associate Editors:

J. J. GRANTHAM

F. S. WRIGHT

Editorial Board:

B. M. BRENNER
W. H. DANTZLER
T. P. DOUSA
J. S. HANDLER

F. G. KNOX
T. MAACK
D. J. MARSH

R. W. SCHRIER
M. WALSER
D. G. WARNOCK

*Publications Committee of the
American Physiological Society*

S. R. GEIGER
*Publications Manager and
Executive Editor*

W. A. SONNENBERG
Business Manager

A. P. FISHMAN, *Chairman*
R. W. BERLINER
R. M. BERNE

B. B. RAUNER
Production Manager

A. RAEFSKY
Copy Editor

Published monthly by
THE AMERICAN PHYSIOLOGICAL SOCIETY
9650 Rockville Pike, Bethesda, Md. 20014

Copyright © 1978 by the American Physiological Society. Printed in the United States of America by Waverly Press, Inc., Baltimore Maryland 21202. The code at the bottom of the first page of an article indicates the copyright owner's consent that copies of an article may be made beyond that permitted by sections 107 and 108 of the U.S. Copyright Law—unless the copies are for general distribution, for advertising, for creating new works, or for resale—provided the per-copy fee is paid through the Copyright Clearance Center, Inc., Operations Center, P.O. Box 765, Schenectady, New York 12301.

Guest Referee Editors

The Publications Committee of the American Physiological Society gratefully acknowledges the services of the following guest referee editors who assisted the Editorial Board in the reviews of manuscripts.

R. G. Abramson	D. R. DiBona	D. E. Kamm	G. A. Quamme
S. Adler	G. F. DiBona	M. A. Kaplan	H. J. Reineck
Z. S. Agus	C. G. Duarte	A. I. Katz	E. M. Renkin
Q. Al-Awqati	A. B. DuBois	M. L. Kauker	B. R. Rennick
E. A. Alexander	T. DuBose	F. Kiil	L. Reuss
R. J. Anderson	M. J. Dunn	W. M. Kirkendall	G. L. Robertson
W. J. Arendshorst	B. R. Edwards	S. Klahr	F. Roch-Ramel
P. Aronson	N. Emmelin	H. Knauer	S. G. Rostand
G. D. Aurbach	M. Epstein	J. P. Knochel	G. Sachs
M. D. Bailie	A. Essig	J. P. Kokko	R. Safirstein
A. D. Baines	L. G. Fine	T. A. Kotchen	J. A. Schafer
N. Bank	A. L. Finn	R. T. Kunau	B. Schmidt-Nielsen
L. Bankir	W. Finn	N. A. Kurtzman	J. F. Seely
D. W. Barfuss	W. Flamenbaum	M. A. Lang	P. Silva
A. C. Barger	J. N. Forrest	H. D. Lauson	M. Silverman
F. C. Bartter	R. H. Freeman	A. Leaf	D. P. Simpson
T. Berl	N. S. Frega	C. P. Lechene	S. L. Skinner
C. Berry	J. J. Friedman	S. D. Levine	E. Slatopolsky
B. Biagi	R. A. Frizzell	M. Levy	S. Solomon
R. C. Blantz	J. C. Frolich	S. Lewis	K. Spring
J. Bourdeau	J. H. Galla	M. D. Lifschitz	T. H. Steele
J. J. Bourgoignie	F. J. Gennari	L. S. Lilienfield	J. H. Stein
R. H. Bowman	G. H. Giebisch	M. D. Lindheimer	J. L. Stephenson
S. E. Bradley	J. R. Gill, Jr.	J. G. Llauro	P. Stern
E. H. Bresler	S. Goldfarb	O. H. Lowry	B. J. Stinebaugh
J. R. Briggs	L. Goldstein	R. G. Luke	L. C. Stoner
W. A. Brodsky	R. B. Gunn	D. A. Maddox	W. N. Suki
M. J. Brody	E. Haber	R. H. Maffly	L. P. Sullivan
R. E. Bulger	J. E. Hall	T. H. Maren	D. R. Taves
M. B. Burg	M. Hanley	M. Martinez-Maldonado	L. Tobian, Jr.
T. J. Burke	R. Harris	S. G. Massry	J. Torretti
I. Cabantchik	A. Hassid	K. McDonald	C. Vaanonde
N. W. Carter	S. C. Hebert	J. C. McGiff	H. Valtin
L. R. Chase	S. I. Helman	F. A. O. Mendelsohn	R. W. Walter
P. C. Churchill	J. T. Higgins, Jr.	G. Meschia	M. W. Weiner
J. W. Coburn	N. K. Hollenberg	B. S. Misanko	E. J. Weinman
Jordan J. Cohen	J. B. Hook	R. G. Narins	L. W. Welling
R. E. Colindres	U. Hopfer	L. G. Navar	J. S. Willis
J. D. Conger	H. N. Hulter	P. Needleman	L. R. Willis
L. S. Costanzo	J. D. Humes	R. G. O'Neil	D. R. Wilson
N. P. Curthoys	I. Ichikawa	S. Oparil	E. E. Windhager
J. O. Davis	H. D. Itskovitz	J. R. Pappenheimer	E. M. Wright
W. N. Deen	J. R. Jaenike	D. W. Ploth	W. E. Yarger
V. W. Dennis	R. L. Jamison	H. G. Preuss	J. A. Young
F. R. DeRubertis	G. J. Kaloyanides	J. B. Puschett	R. M. Zusman

American Journal of Physiology: Renal, Fluid and Electrolyte Physiology

No. 1. JULY 1978

EDITORIAL REVIEW

Questions and replies: renal mechanisms for urinary concentrating and diluting processes

T. E. Andreoli, R. W. Berliner, J. P. Kokko, and D. J. Marsh F1

Mobilization of ascites in cirrhotic dogs following furosemide or mannitol diuresis
M. Levy and C. Richard F12

Calcium in the control of renin release
C. S. Park and R. L. Malvin F22

Potassium reabsorption and secretion in the perfused bullfrog kidney
D. G. Deeds, L. P. Sullivan, and D. J. Welling F26

Coupling between chloride absorption and base excretion in isolated skin of *Rana esculenta*
J. Ehrenfeld and F. Garcia-Romeu F33

Urinary zinc excretion following infusions of zinc sulfate, cysteine, histidine, or glycine
A. A. Yunice, R. W. King, Jr., S. Kraikitpanitch, C. C. Haygood, and R. D. Lindeman F40

Angiotensin II, renal nerves, and prostaglandins in renal hemodynamics during hemorrhage
W. L. Henrich, T. Berl, K. M. McDonald, R. J. Anderson, and R. W. Schrier F46

Effects of glucose and insulin on metabolism and function of perfused rat kidney
C. M. Gregg, J. J. Cohen, A. J. Black, M. A. Espeland, and M. L. Feldstein F52

Inhibition of renin release from rat kidney slices by the angiotensins
A. J. Naftilan and S. Oparil F62

SPECIAL COMMUNICATIONS

Renal papillary epithelial morphology in antidiuresis and water diuresis
J. V. Bonventre, M. J. Karnovsky, and C. P. Lechene F69

No. 2. AUGUST 1978

EDITORIAL REVIEW

H⁺ transport in urinary epithelia
Q. Al-Awqati F77

Further studies on ion permeation in proximal tubule of *Necturus* kidney
A. Edelman and T. Anagnostopoulos F89

Evidence for glomerular receptors for parathyroid hormone
J. Sraer, J. D. Sraer, D. Chansel, H. Jueppner, R. D. Hesch, and R. Ardaillou F96

Net potassium addition beyond the superficial distal tubule of the rat
H. J. Reineck, R. W. Osgood, and J. H. Stein F104

Renal effect of prostaglandin synthetase inhibition in rats: micropuncture studies
R. J. Roman and M. L. Kauker F111

Sequential changes in catecholamine plasma levels during isotonic volume expansion in dogs <i>S. Carrière, G. Lalumière, A. Daigneault, and J. de Champlain</i>	F119
Identification of two components in the natriuretic response to saline loading in the rat <i>F. J. Gennari, G. S. Lefavour, C. R. Caflisch, S. Spevack, and S. Cortell</i>	F126
Effects of furosemide and acetylcholine in norepinephrine-induced acute renal failure <i>A. de Torrente, P. D. Miller, R. E. Cronin, P. E. Paulsen, A. L. Erickson, and R. W. Schrier</i>	F131
Effects of renal fuels on uptake of PAH and uric acid by separated renal tubules of the rabbit <i>I. Kippen and J. R. Klinenberg</i>	F137
Determinants of proximal tubular reabsorption as mechanisms of glomerulotubular balance <i>B. J. Tucker and R. C. Blantz</i>	F142
Renal and vascular responses of the bullfrog (<i>Rana catesbeiana</i>) to mesotocin <i>P. K. T. Pang and W. H. Sawyer</i>	F151
Renal and tubuloglomerular feedback responses to plasma expansion in the rat <i>D. W. Ploth, J. Rudolph, C. Thomas, and L. G. Navar</i>	F156

No. 3. SEPTEMBER 1978

EDITORIAL REVIEW

The control of sodium excretion <i>H. E. De Wardener</i>	F163
Renal hemodynamics in acute and chronic angiotensin II hypertension <i>J. E. Hall, A. C. Guyton, H. C. Salgado, R. E. McCaa, and J. W. Balfe</i>	F174
Antidiuretic hormone increases renal prostaglandin synthesis in vivo <i>L. A. Walker, A. R. Whorton, M. Smigel, R. France, and J. C. Frölich</i>	F180
Potassium transfer in distal tubule of normal and remnant kidneys <i>R. T. Kunau, Jr. and M. A. Whinnery</i>	F186
Transepithelial gradient and fractional delivery of chloride in thin loop of Henle <i>D. R. Gelbart, C. A. Battilana, J. Bhattacharya, F. B. Lacy, and R. L. Jamison</i>	F192
Cardiovascular responses to blockade of angiotensin and alpha-adrenergic receptors <i>L. J. Borucki, D. Levenson, and N. K. Hollenberg</i>	F199
Characterization of distal hydrogen ion secretion in acute respiratory alkalosis <i>J. T. Sehy, M. K. Roseman, J. A. L. Arruda, and N. A. Kurtzman</i>	F203
Interstitial pressure during volume expansion at reduced renal artery pressure <i>G. R. Marchand</i>	F209
Effects of calcium on prostaglandin E ₂ synthesis by rat inner medullary slices <i>T. V. Zenser and B. B. Davis</i>	F213
Direct examination of chloride transport across papillary collecting duct of the rat <i>E. Higashihara, T. D. DuBose, Jr., and J. P. Kokko</i>	F219
Tissue K ⁺ loss from the perfused rat kidney: effects of lactate and albumin treatment <i>L. S. Merckens, J. J. Cohen, O. W. Peterson, M. J. Zamlauski, C. M. Gregg, and A. J. Black</i>	F228
Ion selectivity and proximal salt reabsorption <i>C. A. Berry, D. G. Warnock, and F. C. Rector, Jr.</i>	F234
Distribution along the rat nephron of three enzymes of gluconeogenesis in acidosis and starvation <i>H. B. Burch, R. G. Narins, C. Chu, S. Fagioli, S. Choi, W. McCarthy, and O. H. Lowry</i>	F246
Extracellular water measurements: organ tracer kinetics of bromide and sucrose in rats and man <i>R. N. Pierson, Jr., D. C. Price, J. Wang, and R. K. Jain</i>	F254

EDITORIAL REVIEW

Ammonia metabolism <i>R. L. Tannen</i>	F265
<hr/>	
Concentrative PAH transport by rabbit kidney slices in the absence of metabolic energy <i>R. A. Podevin, E. F. Boumendil-Podevin, and C. Priol</i>	F278
Characterization of the postocclusive response of renal blood flow in the cat <i>W. S. Spielman and H. Osswald</i>	F286
Changes in the plasma anion gap during chronic metabolic acid-base disturbances <i>H. J. Adrogue, J. Brensilver, and N. E. Madias</i>	F291
K ⁺ deprivation potentiates the renal alkalosis-producing effect of mineralocorticoid <i>H. N. Hulter, J. F. Sigala, and A. Sebastian</i>	F298
Separate renal function studies in conscious dogs with renovascular hypertension <i>J. M. DeForrest, J. O. Davis, R. H. Freeman, B. E. Watkins, and G. A. Stephens</i>	F310
Carbonic anhydrase in the generation of cochlear potentials <i>J. Prazma</i>	F317
Effect of parathyroid hormone on phosphate reabsorption in rat distal convolution <i>E. Pastoriza-Muñoz, R. E. Colindres, W. E. Lassiter, and C. Lechene</i>	F321
Iodide and thiocyanate efflux from brain following injection into rat caudate nucleus <i>H. F. Cserr and B. J. Berman</i>	F331
Effects of inhibitors of prostaglandin synthesis on renal sodium excretion in normal dogs and dogs with decreased renal mass <i>P. Altsheler, S. Klahr, R. Rosenbaum, and E. Slatopolsky</i>	F338
Relationship between blood pH and potassium and phosphorus during acute metabolic acidosis <i>J. R. Oster, G. O. Perez, and C. A. Vaamonde</i>	F345
Influence of perfusate osmolality on stop-flow pressure feedback responses in the dog <i>L. G. Navar, P. D. Bell, C. E. Thomas, and D. W. Ploth</i>	F352
Tetracycline-induced inhibition of Na ⁺ transport in the toad urinary bladder <i>J. Guzzo, M. Cox, A. B. Kelly, and I. Singer</i>	F359
Calcium transport across segments of the rabbit distal nephron in vitro <i>G. R. Shareghi and L. C. Stoner</i>	F367
Metabolism of arginine by the isolated perfused rat kidney <i>G. O. Perez, M. Epstein, B. Rietberg, and R. Loutzenhiser</i>	F376
Effect of ionophore RO 2-2985 on the efflux of calcium from the rat nephron <i>H. O. Senekjian, T. F. Knight, A. Ince, and E. J. Weinman</i>	F381

ANNOUNCEMENTS

F385

EDITORIAL REVIEW

Principles of nephron differentiation <i>M. Horster</i>	F387
<hr/>	
Renal handling of sodium in Kyoto-Okamoto rats: a micropuncture study <i>A. Vandewalle, N. Farman, and J. P. Bonvalet</i>	F394
Uncoupling of proximal sodium bicarbonate from sodium phosphate transport by bumetanide <i>J. B. Puschett, D. Sylk, and P. R. Teredesai</i>	F403

Mechanism of exaggerated diuresis in spontaneously hypertensive rats <i>G. F. DiBona and L. L. Rios</i>	F409
Glomerulotubular balance following saline loading in the developing canine kidney <i>B. S. Arant, Jr.</i>	F417
Blunted norepinephrine natriuresis in the isolated spontaneously hypertensive rat kidney <i>T. H. Steele and J. L. Underwood</i>	F425
Glucose-mediated inhibition of phosphate reabsorption in rat kidney <i>B. Corman, C. Touvay, P. Poujeol, and C. de Rouffignac</i>	F430
Antidiuretic hormone-induced intramembranous alterations in mammalian collecting ducts <i>M. C. Harmanci, W. A. Kachadorian, H. Valtin, and V. A. DiScala</i>	F440
Importance of chloride for acute inhibition of renin by sodium chloride <i>K. A. Kirchner, T. A. Kotchen, J. H. Galla, and R. G. Luke</i>	F444
Immunohistochemical localization of the prostaglandin-forming cyclooxygenase in renal cortex <i>W. L. Smith and T. G. Bell</i>	F451
Stimulation of adenylate cyclase in isolated rat glomeruli by prostaglandins <i>D. Schlondorff, P. Yoo, and B. E. Alpert</i>	F458
Cross-circulation study of natriuretic factors in rats with reduced nephron mass <i>D. R. Wilson and U. Honrath</i>	F465
Organic acid secretory pathway and urinary excretion of prostaglandin E in the dog <i>S. G. Rosenblatt, R. V. Patak, and M. D. Lifschitz</i>	F473
Effect of ouabain and colloid osmotic pressure on renal tubule cell volume <i>M. A. Linshaw and F. B. Stapleton</i>	F480
Calcium and sodium transport by the distal convoluted tubule of the rat <i>L. S. Costanzo and E. E. Windhager</i>	F492
Dual effects of amphotericin B on ion permeation in toad urinary bladder epithelium <i>L. Reuss, J. T. Gatzky, and A. L. Finn</i>	F507

No. 6. DECEMBER 1978

EDITORIAL REVIEW

Renal potassium transport: contributions of individual nephron segments and populations <i>F. S. Wright and G. Giebisch</i>	F515
Interactions between volume expansion or diuretics and compensatory adaptation <i>Y. Arslan, J. Diezi, and G. Peters</i>	F528
Bidirectional sodium fluxes across the placenta of conscious sheep <i>A. P. Weedon, T. E. Stacey, R. H. T. Ward, and R. D. H. Boyd</i>	F536
Renal handling of free and conjugated catecholamines following surgical stress in the dog <i>T. Unger, N. T. Buu, and O. Kuchel</i>	F542
Actions of adrenergic agonists on isolated excretory ducts of submandibular glands <i>A. R. Denniss, L. H. Schneyer, C. Sucanthapree, and J. A. Young</i>	F548
Effect of decreased renal sympathetic nerve activity on renal tubular sodium reabsorption <i>E. H. Prosnitz and G. F. DiBona</i>	F557
Cholinergic agents inhibit sodium transport across the isolated toad bladder <i>W. Wiesmann, S. Sinha, J. Yates, and S. Klahr</i>	F564
Renal histamine H ₁ and H ₂ receptors: characterization and functional significance <i>R. O. Banks, J. D. Fondacaro, M. M. Schwaiger, and E. D. Jacobson</i>	F570

Mineralocorticoid effects on cation transport by cortical collecting tubules in vitro <i>G. J. Schwartz and M. B. Burg</i>	F576
Inhibition of toad urinary bladder sodium transport by carbamylcholine: possible role of cyclic GMP <i>M. K. Sahib, J. H. Schwartz, and J. S. Handler</i>	F586
Relative sodium-to-chloride permeability in the proximal convoluted tubule <i>C. A. Berry and F. C. Rector, Jr.</i>	F592
Effect of exogenous and endogenous angiotensin II in the isolated perfused rat kidney <i>M. Dávalos, N. S. Frega, B. Saker, and A. Leaf</i>	F605
Renin secretion and distal tubule Na ⁺ in rats <i>P. C. Churchill, M. C. Churchill, and F. D. McDonald</i>	F611
Transcellular and paracellular tracer chloride fluxes in <i>Necturus</i> proximal tubule <i>G. Kimura and K. R. Spring</i>	F617
A model for transepithelial fluid transport <i>E. H. Bresler</i>	F626
A network thermodynamic model of salt and water flow across the kidney proximal tubule <i>S. R. Thomas and D. C. Mikulecky</i>	F638

ANNOUNCEMENTS

F649

Subject Index to Volume 4

F651

Author Index to Volume 4

F659

CORRIGENDA

Volume 234, June 1977

Volume 3, June 1977

Page F532: R. M. Zusman, H. R. Keiser, and J. S. Handler. "Effect of adrenal steroids on vasopressin-stimulated PGE synthesis and water flow." **Page F536:** The illustration in Figure 3 should have appeared as Figure 4. The illustration in Figure 4 should have appeared as Figure 3.

